

PHYSICAL ACTIVITY CONTEXT PREFERENCES OF HIV-POSITIVE INDIVIDUALS AT UNITED BULAWAYO HOSPITALS

By

**Kamitsa Exavier
725075**

Project submitted in partial fulfillment of the requirements of Masters in Physiotherapy Degree

2016

**University of the Witwatersrand
School of Health Sciences
Johannesburg**

Supervised by

Ms. Nadia Gillion

Prof. Hellen Myezwa

DECLARATION

This work has not been previously accepted for any degree and is not being concurrently submitted in candidature for any degree. This work was approved for submission by the research supervisors.

This dissertation is the result of my own independent work and investigation, except where otherwise stated.

DEDICATION

I would like to dedicate this project to my son, Takudzwa. May the Lord above bless him.

BIBLE QUOTATIONS

“But seek ye first the kingdom of God, and His righteousness; and all these things shall be added unto you.” Matthew 6:33

“He who finds wisdom finds a good thing”

“Make fun of wisdom and you will never find it. But if you have understanding, knowledge comes easily.” Proverbs 14:6

ABSTRACT

Aim: the aim of the research was to determine the physical activity context preferences of HIV-positive individuals at United Bulawayo Hospitals (UBH).

Objectives: the objectives of the research were to identify the physical activity format, location and social setting preferences of HIV-positive individuals at UBH. We also wanted to determine the association between physical activity context preferences and self-reported health status.

Methodology: the research team had 109 participants at UBH's opportunistic infections clinic taking part in the study. Besides responding to socio-demographic questions, they also indicated, on a Likert scale, the extent of agreement or disagreement with a preference for each of the 19 contexts relating to format, location and social setting. One of the questions on the socio-demographic section requested them to rate their health status. Descriptive statistics were used to describe, organise and summarise data and they included frequencies and percentages for categorical data, descriptions of central tendency (mean) and descriptions of relative position (range and standard deviation) for continuous data. Kendall's tau b analysis was done to determine if there was an association between the preference for the 19 physical activity contexts and self-reported health status.

Results: the respondents agreed with a preference for all the physical activity contexts except for activities that are vigorous or involve competition. There was no association between the preferences for all the 19 physical activity contexts and self-reported health status except the preference for activities that are done with people of the same gender.

Conclusion and recommendations: policy makers and healthcare practitioners should take note of the preferred physical activity contexts by HIV-positive individuals. Future investigations should explore the stage of HIV infection so that physical activity context preferences at every stage of the disease are known. Future studies should also include members of the society who are economically advantaged as most of the participants live below the poverty datum level.

ACKNOWLEDGEMENTS

Special thanks to the following people for their invaluable assistance during the course of this study:

- Ms. Nadia Gillion – my Research Supervisor for her great, excellent and untiring assistance, correction and supervision in this research.
- Prof. Hellen Myezwa – my second Supervisor and Chairperson of Physiotherapy Dept for her equally good assistance during the whole duration of this research.
- Prof. Witness Mudzi – Post-graduate research coordinator.
- Mrs. Ntokozo Kamitsa – my wife for the great and marvelous motivation and moral support throughout the whole project.
- Dr. Moses Chirimbana – the statistician for the statistical analysis of the collected raw data.
- Dalubuhle Nyoni – physiotherapist and first research assistant for data collection
- Precious Madzimbe – physiotherapist and second research assistant for data collection
- Nomvelo Moyo for questionnaire translation from English to Ndebele.

TABLE OF CONTENTS

Contents

DECLARATION	i
DEDICATION	ii
ABSTRACT.....	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS.....	v
LIST OF TABLES	ix
Chapter 1	1
Introduction.....	1
1.1 Background	1
1.2 Problem Statement	4
1.3 Research Question.....	5
1.4 Aim.....	5
1.5 Objectives.....	5
1.6 Significance of the study	5
1.7 Conclusion.....	6
Chapter Two.....	7
Literature Review.....	7
2.0 Literature Review Outline.....	7
2. 1 Introduction	7
2.2 Physical activity, exercise, fitness and sport	8
2.3 Benefits of physical activity participation.....	9
2.4 Physical activity protocols	15

2.5 Barriers to physical activity participation	16
2.6 Facilitators to physical activity participation	19
2.7 Physical Activity Context Preferences	21
2.7.1 Introduction	21
2.7.2 Format preferences	22
2.7.3 Location Preferences	24
2.7.4 Social Setting Preferences	26
2.8.1 Instrument and outcome measure	28
2.8.2 Self-reported health status	30
2.9 Conclusion	30
Chapter 3	32
Methodology	32
3.0 Introduction	32
3.1 Study Setting	32
3.2 Study Design	32
3.3 Participants	33
3.3.1 Population and sampling	33
3.3.2 Inclusion criteria	33
3.3.3 Exclusion criteria	34
3.3.4 Sampling	34
3.3.5 Sample size determination	34
3.4 Instrumentation	34
3.5 Pilot Study	35
3.6 Method of analysis	35

3.7 Ethical considerations	36
3.8 Conclusion.....	37
Chapter 4	38
Results and Analysis of Results	38
4.1 Introduction	38
4.2 Demographic Information	38
4.3 Physical activity context preferences	40
4.3.1 Format Preferences	40
4.3.2 Location Preferences	41
4.3.3 Social setting preferences	42
4.4 Association between physical activity context preferences and self-reported health status	43
4.5 Conclusion.....	44
Chapter 5	45
Discussion	45
5.0 Introduction	45
5.1 Physical Activity Context Preferences	45
5.1.1 Format Preference.....	45
5.1.2 Location Preference	48
5.1.3 Social setting preference	49
5.2 Association between physical activity context preferences and self-reported health status	52
Chapter 6	53
Conclusion and Recommendations	53
6.1 Conclusion.....	53
6.2 Recommendations	54

6.3 Limitations of the investigation.....	55
References.....	56
Appendix 1 – English Informed Consent Form.....	61
Appendix 2 – Shona Informed Consent Form	63
Appendix 3 – Ndebele Informed Consent Form.....	65
Appendix 4 – English Questionnaire	67
Appendix 5 – Shona Questionnaire	71
Appendix 6 – Ndebele Questionnaire	76
Appendix 7 – Communication with Prof Burton.....	81
Appendix 8 – Wits HREC Clearance Letter	83
Appendix 9 – Medical Research Council of Zimbabwe Ethics Clearance letter.....	84
Appendix 10- United Bulawayo Hospitals Approval	85
Appendix 11 – Turnitin Summary Report	86

LIST OF TABLES

Table 4. 1:Baseline demographic characteristics	39
Table 4. 2: Distribution of format preferences (n=109).....	40
Table 4. 3: Distribution of location preferences (n=109)	41
Table 4. 4: Distribution of social setting preferences (n = 109)	42
Table 4. 5: Association between physical activity context preferences and self-reported health status	43
Table 4. 6: Model of the influence of the preference for activities they can do with people of the same gender on self-reported health status	44

Chapter 1

Introduction

1.1 Background

HIV affects many people in Zimbabwe with recent statistics from the United Nations AIDS showing that 14.1% of Zimbabwe's 12.5 million people is living with the virus (Zimstats, 2015; NAC, 2014). So, over 1.2 million adults are living with the virus in Zimbabwe hence the need to find strategies for alleviating the resultant difficulties from the direct effects of the disease and treatment (NAC, 2014). Besides the difficulties associated with living with HIV the cost of managing the disease continues to increase as more and more people live longer and new methods of management are found. The profile of HIV infection has changed over time, as it was once viewed as an illness progressing steadily toward death, but HIV infection can now present as a chronic and episodic disease for people who are able to access and tolerate highly active antiretroviral therapy (O'Brien et al, 2008). These developments in this chronic and episodic disease have been mirrored by the increasing prevalence of impairments (problems with body function or structure as a significant deviation or loss such as pain or weakness), activity limitations (difficulties with execution of tasks at the person level) and participation restrictions (difficulties with execution of tasks in life situations or at society level) for many people living with HIV (Ezema et al, 2015; Fillipas et al, 2010; Roos et al, 2014).

Growing evidence suggests that physical activity has multiple health benefits for people living with HIV including improved aerobic fitness, strength, quality of life, self-efficacy, and a reduction in cardiovascular disease risk (Fillipas et al, 2010; Roos et al 2014). Physical inactivity prevents people infected with HIV from achieving their highest level of wellness. Consequently, the use of exercise as an adjunct therapy in the management of impairments resulting from HIV/AIDS is becoming increasingly common among physiotherapists (Ezema et al, 2015). Furthermore, effective and safe exercise may enhance the effectiveness of HIV management, thus improving overall health outcomes for adults living with HIV (Ezema et al, 2015). Participation in physical activity is associated with benefits such as reduced risk of premature mortality, obesity, cardiovascular disease, some cancers, musculoskeletal problems, type II diabetes and psychological difficulties (Burton et al, 2012). Progressive resistance exercise, or

muscle strengthening, offers a unique benefit by improving muscle mass in persons living with HIV disease (Roubenoff et al, 1997). The preservation of lean body mass for individuals who experience lipodystrophy syndrome associated with highly active antiretroviral therapy may be particularly helpful (Brown and Batterham, 2001). In their study investigating an HIV-positive black population Ezema et al (2015) found that moderate intensity exercise reduces systolic blood pressure and diastolic blood pressure and also increases CD4 count and VO2 max. Roos et al (2014) also reported that physical activity has an inverse relationship with viral load in people living with HIV/AIDS. In a study by Macallan (1999) exercise was found to slow the progression of an AIDS-related illness and it was concluded that it may be effective in the prevention of complications such as malnutrition, AIDS wasting and cardiovascular and lipid abnormalities, associated with HIV disease. This was also noted by Ramirez-Marrero et al (2004) who postulated that antiretroviral therapy causes lipodystrophy and insulin resistance, and that physical activities reduced these effects and improved emotional and physical well-being of HIV-positive persons. In this same study by Ramirez-Marrero et al (2004) physically active HIV-positive individuals were found to have higher life satisfaction scores and healthier body composition as compared to the physically inactive. Health professionals were encouraged to promote a physically active lifestyle among HIV-positive individuals (Ramirez-Marrero et al, 2004).

So in spite of the potential health benefits associated with physical activity as highlighted above and the need to facilitate optimal wellness while living with this chronic condition, few investigations have examined factors that facilitate or hinder physical activity participation for this population. Miller and Dunstan (2004) recommended research on strategies to improve adherence to physical activity programmes. Most research has focused on the benefits of physical activity participation ignoring barriers and impediments to participation. The results from this research have shown a lack of compliance to exercise programmes or modalities by patients. Meseguer et al (2009) in their study identified some factors determining physical activity participation being psychosocial factors, family size (number of children), material resources, and presence of illness or poor perceived health. Motivation has also been sighted as an important factor that influences physical activity participation.

There is dearth of literature on HIV and physical activity participation and the format, location and the social setting preferences and physical activity behaviours for this population are also still missing from the empirical literature (Clingerman, 2003). The net result has been the continued lack of exercise for people living with the virus with the result being reduced mobility, muscular strength, joint flexibility and endurance which can be prevented (O'Brien et al, 2008).

A study by Fillipas et al (2010) in the HIV-positive population in Australia showed that 25% of the individuals followed the American College of Sports Medicine physical activity guidelines and the remaining 75% were classified as inactive. Given the likely benefits of physical activity in this population, these data demonstrated a need to improve the uptake of appropriate physical activity and to identify barriers to this. The 1991 national survey data in the USA showed that 58% of the United States population either never engaged in physical activity or did so on an irregular basis (Burrell et al, 1997). It has also been estimated that only 40% of adults across the globe do engage in physical activities to attain the benefits which come with physical activity participation (Beauchamp et al, 2007). It comes as no surprise that physical activity has been declared as “the new imperative for public health” if one appreciates the physical and psychosocial issues related to inactivity. A study by Clingerman (2003) on HIV-positive individuals showed that fewer of the participants met Healthy People 2010 Physical Activity recommendations than persons in the general population. Similar results were also found by Meseguer et al (2009) who established that adherence to leisure time physical activity was a challenge to women of low socio-economic status, older individuals, the less educated and those with obesity.

Most research on physical activity and HIV has been done in developed countries and most recommendations may not apply in the context of developing countries. Less developed countries often suffer lack of financial support for HIV/AIDS programs and this manifests as reduced availability of equipment such as pedometers and accelerometers. No literature could be found specific for Zimbabwe that has investigated barriers and facilitators to physical activity participation. Thus, there is need for research on physical activity context specific preferences of patients in the African context which will then help in coming up with special exercise programmes. No research could be found on physical activity context preferences of HIV-

positive individuals; neither was it found for the general population. There is little evidence about the adequacy or degree of compliance to prescribed physical activity behaviour changes (Miller and Dunstan, 2004). This research will go some way to close the knowledge gap in this area of HIV management. The research may also contribute to the formulation of effective physical activity programmes for HIV-positive patients. A number of studies done on this subject only assessed a small number of physical activity context preferences and there is therefore a need for studies that assess many contextual variables (Burton et al, 2012). The information can also be used by policy makers in designing recreational facilities of patient perceived preferences.

Operational definition – special population - any group of people suffering from a condition, be it physical, psychological or any disease.

1.2 Problem Statement

The profile of HIV has changed as it now presents as a chronic and episodic disease for people who are able to access and tolerate highly active antiretroviral therapy. This has resulted in an increase in the prevalence of impairments, activity limitations and participation restrictions. However, despite the above developments and the potential health benefits associated with physical activity and the need to facilitate optimal wellness while living with this chronic condition, very few investigations have examined factors that facilitate or hinder physical activity participation for this group in Zimbabwe. The literature shows that very few of the individuals who are HIV-positive meet the recommended physical activity participation levels. The participation in physical activities by people who are HIV-positive is hindered by many factors many of which can be controlled. Most research has also focused on the benefits of physical activity participation ignoring barriers and impediments to participation. Facilitators of physical activity participation have also not been explored. The results have been lack of compliance to exercise programmes or modalities by patients.

Of the little research available most research on physical activity and HIV has been done in the first world and recommendations may not apply in the context of the third world. Zimbabwe has not done much in investigating this important aspect in the management of HIV which has been shown to help in reducing the side effects of antiretroviral therapy. There is also no research on

physical activity context preferences of HIV-positive individuals; neither is it there for the general population. This could be because of lack of financial resources to carry out research.

In summary the research will identify physical activity context preferences in the HIV-positive population. The main goal of identifying the physical activity context preferences is to come up with strategies of improving exercise regime compliance in HIV-positive individuals and to also counter barriers to physical activity participation. However, according to Peeters et al (2014), it should be acknowledged that the stated physical activity context preferences may not be reflected in actual physical activity participation and adherence which are also likely to be influenced by other factors such as pragmatics and opportunity.

1.3 Research Question

What are the physical activity context preferences of HIV-positive individuals at United Bulawayo Hospitals (UBH)?

1.4 Aim

To determine the physical activity context preferences of HIV-positive individuals at UBH.

1.5 Objectives

- To identify the physical activity format (how) preference of HIV-positive individuals at UBH.
- To identify the physical activity location (where) preference of HIV-positive individuals at UBH.
- To identify the physical activity social setting (with whom) preference of HIV-positive individuals at UBH.
- To determine the association between physical activity context preferences and self-assessed health status.

1.6 Significance of study

Understanding contextual preferences is important for physical activity participation and people are more likely to engage in physical activities that are consistent with their interests. Although

identifying the type of physical activities that people prefer is useful, an understanding of physical activity context preferences provides more descriptive information. It is also linked to adherence behaviour and a stronger intention to continue involvement with exercise. Even for people who are not interested in physical activity participation, the context in which it is engaged may be important in motivating participation. Choosing the applicable adult learning theories/strategies for the specific population are also very important to enhance adherence and motivation.

The use of exercise as an adjunct therapy in the management of impairments resulting from HIV/AIDS has also become common among physiotherapists. Furthermore, effective and safe exercise enhances the effectiveness of HIV management, thus improving overall health outcomes for adults living with HIV. However, there are lots of barriers to physical activity participation in this population which need to be broken and we also need to find the facilitators to physical participation. Hence this study may recommend strategies to improve adherence to physical activity programmes. The information may also be used by policy makers in designing recreational facilities of patient perceived preferences. The research may also close the knowledge gap in this area of HIV management as revealed by literature. It may go a long way in the formulation of effective physical activity programs for HIV-positive patients. A number of studies done on this subject have only assessed a limited number of physical activity context preferences and therefore there is a need for studies that assess a range of contextual variables.

1.7 Conclusion

With this research we hope to find the format, location and social setting contextual preferences of the HIV-positive population at UBH. It is acknowledged that identifying the environment, setting or situation gives more descriptive information about the physical activities. This is important in motivating the participation in physical activities or encouraging compliance with prescribed physical activities.

Chapter Two

Literature Review

2.0 Literature Review Outline

This review of the literature will outline the benefits of physical activity in the general population and then bring out the relevance of physical activity in the HIV-positive population. Barriers and facilitators to physical activity participation will be discussed with the hope of understanding how to address the barriers and at the same time enhancing the facilitators. Physical activity context preferences will be discussed last as these arise from understanding the barriers and facilitators to physical activity.

A number of research portals were accessed in search of articles related to the topic of interest e.g. EBSCO, CINAHL Plus, ClinicalKey, Pubmed, Cochrane Library, PEDro, Physiopedia, SCOPUS, SPORTDiscus and Google Scholar. Secondary searches were also done if the referenced articles were deemed relevant to the study.

The following subheadings constitute the literature review

2.1 Introduction

2.2 Physical activity, exercise, fitness and sport

2.3 Benefits of physical activity participation

2.4 Physical activity protocols

2.5 Barriers to physical activity participation

2.6 Facilitators to physical activity participation

2.7 Physical activity context preferences

2.8 Instrument and outcome measure

2.9 Conclusion

2. 1 Introduction

Acquired immune deficiency syndrome (AIDS) is a disease caused by the retrovirus human immunodeficiency virus (HIV) and is characterized by profound immunosuppression that leads to opportunistic infections, secondary neoplasm and neurological manifestations (Ezema et al,

2015). It presents an urgent world-wide problem with an impact on the social, cultural, economic, political and ethical dimensions. The profile of HIV infection has changed over time, as it was once viewed as an illness progressing steadily toward death but as a result of improvements in antiretroviral therapy there has been a reduction in opportunistic infections and HIV-related deaths and an increased prevalence of persons living with HIV disease (PLWHD) (O'Brien et al, 2008). These developments in this chronic and episodic disease have been mirrored by the increasing prevalence of impairments (problems with body function or structure as a significant deviation or loss such as pain or weakness), activity limitations (difficulties with execution of tasks at the person level) and participation restrictions (difficulties with execution of tasks in life situations or at society level) for many people living with HIV (Ezema et al, 2015; Fillipas et al, 2010; Roos et al, 2014). HIV disease can deprive an individual of his or her physical and psychological resources, such as mobility, muscular strength, joint flexibility, endurance, and energy and physical activity may facilitate coping with illness-related stress and improve aerobic capacity, cardiopulmonary and immune function for PLWHD (Clingerman, 2003; Roos et al, 2014). Consequently, the use of exercise as an adjunct therapy in the management of impairments resulting from HIV/AIDS is becoming increasingly common among physiotherapists (Ezema et al, 2015).

2.2 Physical activity, exercise, fitness and sport

It is well appreciated that physical activity participation is good for health and that inactivity is detrimental to health. However, the usage of the terms exercise, physical activity, fitness and sport has received increased attention as the questions of how much exercise is enough continues to be investigated (Wiest and Lyle, 1997). Physical activity and exercise are not interchangeable terms, although, with certain frequency, they are employed without distinction, and physical exercise and sports are even utilized as synonyms (Perez, 2008).

Physical activity has been defined as any bodily movement produced by skeletal muscles that results in energy expenditure (Wiest and Lyle, 1997).

Exercise is a subset of physical activity and is defined as planned, structured, and repetitive bodily movement done to improve or maintain one or more components of physical fitness (Wiest and Lyle, 1997).

Physical aptitude or fitness is understood to be the capacity to perform mild to moderate physical activity without experiencing excessive fatigue. The concept of physical fitness includes different variables of cardiovascular fitness, respiratory fitness, body composition, muscle strength and elasticity, and flexibility (Perez, 2008).

Sports involve organized matches, requiring physical exertion, that abide by an established structure and are coordinated within a context of formal and explicit rules and regulations with respect to behaviours and procedures. Sports are physical and intellectual activities that have a competitive component that involves performance of physical training (Perez, 2008).

2.3 Benefits of physical activity participation

During the ancient times when Hippocrates (460 BC – 370 BC) and Galen (129 – 210 AD) were practicing medicine the “laws of health” included – to breath clean air, exercise, have a bowel movement everyday, and acknowledge one’s emotions when analyzing one’s overall well-being (Wiest and Lyle, 1997). Ancient literature on preventive and therapeutic medicine incorporated the role of physical activity participation. Thus, physical activity participation has dominated the history of preventive health care, and current discussions of exercise are just but the most recent discourse on the relationship between physical activity participation and health maintenance. The World Health Organization estimates that 60% of adults across the globe do not engage in sufficient levels of exercise to attain the necessary levels of health-related benefits (Beauchamp et al, 2007). It has also been noted that only 15% of people in United States follow the recommended 30 minutes of moderate physical activity participation five-days a week and 25% of adults do not engage in physical activities at all (Perez, 2008). Insufficient physical activity is related to the progression of different diseases, such as hypertension and ischaemic heart diseases, causing 1.9 million premature deaths per year globally (Ozdol et al, 2012).

Despite people understanding the relationship between exercise and its health-related benefits, lack of it continues to be a global concern. The reduction in physical work has led to a more sedentary lifestyle and in the process compromising physical fitness (Perez et al, 2008). Valle et al (2004) found that new equipment and machinery for everyday use has greatly contributed to a reduction in engagement in physical activities at work and at home. The reduction in energy

expenditure at work and at home and the greater availability of food has led to a positive energy balance and consequently an increase in obesity. Engagement in exercise is extremely important for energy balance in humans and a more sedentary lifestyle and consequent greater body weight can raise mean plasma lipid, blood pressure and heart rate values, and have a substantial effect on carbohydrate absorption and insulin metabolism (Valle et al, 2004).

This review of the benefits of physical activity looks at the immunological, cardio-respiratory, weight, and biochemical composition, muscle strength and psychosocial outcomes in the general population and other special populations including people living with HIV. A brief review of the risks is also included so that we are also aware of the dangers of physical activity. Generally all the studies support engagement in physical activity and the benefits of physical activity by far outweigh the risks.

Research by Valle et al (2004) confirmed that engagement in exercise is associated with reduced levels of cardiovascular disease (CVD) risk factors, and that the benefits of engagement in physical activity participation are found in all weight groups (normal weight, overweight and obese); this provides evidence that exercise can be of benefit even to individuals who are obese. These results were also confirmed by Bauman (2004) who found that the population risk reduction of CVD was greatest after increasing physical activity among those who were sedentary. The greatest limitation of the study by Valle et al (2004) was that its sample size reduced its statistical power and thus allowed reaching of formal statistical significance only for some parameters such as heart rate and blood pressure. Perez et al (2008) found that aerobic physical activity of long duration, mild to moderate intensity and performed regularly produces a series of adaptations of differing natures (muscular, osseous, metabolic, respiratory and cardiovascular) that produce health benefits. They postulated that engagement in physical activities that involve dynamic and endurance training causes anatomical and physiological cardiovascular adaptations: reduced heart rate, and increases in heart volumes, wall thickness, myocardial blood vessel density and the dilatory capacity. A study by Miller and Dunstan (2004) found that physical activity enhances glucose uptake in skeletal muscle through improved insulin sensitivity and this was attributed to the effects of the last activity session, rather than a training

effect itself. Consequently as a result of this study, to achieve sustained improved glycaemic control and improved insulin sensitivity, regular physical activity participation was emphasized for the treatment of type 2 diabetes.

Physical activity has been shown to reduce all-cause mortality. A review by Bauman (2004) found that there is a cause effect relationship between exercise and all-cause mortality. All cause mortality is reduced by 30% in those who engage in the recommended 30 minutes of moderate intensity physical activities on at least five days of the week, compared with those who are inactive. Furthermore, the maximum benefits on all-cause mortality appear to be in moving people from the most sedentary group to the middle of the physical activity distribution curve.

Physical activity is not only encouraged in the general population but as seen below it is even more encouraged in special populations and those with different disease conditions. According to Fillipas et al (2010) physical activity is an important health-related behaviour for people living with HIV and it has multiple health benefits including improved aerobic fitness, strength, quality of life and self-efficacy. Randomised controlled trials investigating the benefits of exercise for cancer survivors have reported many significant health improvements such as decreased cancer-related fatigue, improvements in cardiorespiratory/aerobic fitness, muscular strength, physical functioning and quality of life (Blaney et al, 2011). A review by Wiest and Lyle (1997) found that colon cancer was inversely related to physical activity and the mechanisms that have been proposed to explain the relationship include shortened intestinal transit time and decreased levels of body fat.

The importance of physical activity as an important health related behaviour for people living with HIV has been studied many times. Evidence from these studies has suggested that physical activity has multiple health benefits for people living with HIV, including improved aerobic fitness, strength, quality of life, self-efficacy and a reduction in cardiovascular disease risk (Fillipas et al, 2010). Exercise may actually slow the progression of an AIDS-related illness and may be effective in the prevention of complications such as malnutrition, AIDS wasting and cardiovascular and lipid abnormalities associated with HIV disease (Clingerman, 2003). A study

in an HIV-positive population by Ezema et al (2015) revealed a significant decrease in systolic blood pressure, diastolic blood pressure and an increase in CD4 count and VO₂ max in the exercise group compared with a control group. Furthermore, results of the same study indicated a significant positive correlation between changes in VO₂ max and changes in CD4 count. The study supported the use of moderate intensity therapeutic aerobic exercise training as an adjunct therapy in the treatment of symptoms of HIV/AIDS infection. They recommended that in symptomatic PLWHA, aerobic exercise should begin as soon as possible after the diagnosis of HIV infection in an attempt to delay the down slope of CD4 cell count and the severity of those symptoms already present, potentially delaying the disease progression and decreasing rates of mortality (Ezema et al, 2015). The positive effect of moderate exercise on the immune system was also supported by a review by Perez et al (2008) who found a J-shaped relationship between the amount of moderate exercise and the CD4 cell count. In the review moderate exercise was found to improve the normal function of cytolytic cells, circulating T and B lymphocytes and the monocytes and macrophages, and thus, can reduce the incidence of infections and certain cancers. However, the same study found that engagement in high intensity activities caused a marked decrease in the body's immune function, especially in individuals with compromised physical fitness levels.

Besides aerobic exercises, progressive resisted exercise or muscle strengthening also offers a unique benefit by improving muscle mass in persons with HIV disease (Clingerman, 2003). The preservation of lean body mass for individuals who experience lipodystrophy syndrome associated with highly active antiretroviral therapy may be particularly helpful (Clingerman, 2003). In a Cochrane review of progressive resisted exercises in adults living with HIV O'Brien et al (2004) found that performing these exercises at least three times a week for at least a month is safe and it also leads to statistical and clinical improvements in body weight and biochemical composition. It was also found during the same review that engagement in these physical activities resulted in improvements in cardiopulmonary fitness, muscle strength and mental status for adults living with the disease. Progressive resisted exercise or a combination of progressive resisted and aerobic exercise appeared to be safe for adults living with HIV/AIDS who are medically stable. However, this review is limited by the small number of studies that could be

included in meta-analyses, small sample sizes and variable participant withdrawal rates among included studies. The researchers recommended that future research should include participants at all stages of HIV infection, a greater number of female participants, and participants in all age groups to increase the generalisability of results. Furthermore, they suggested that future research should have large sample sizes that conduct an "intention-to-treat" analysis (analysis of participants based on the groups to which they were originally allocated) to better understand outcomes of participants that withdraw from exercise interventions.

Another Cochrane meta-analysis by O'Brien et al (2008) indicated that progressive resisted exercise with or without aerobic exercise resulted in improvements of body weight and biochemical composition and a trend in increases in the measures of cardio-respiratory values for people living with HIV/AIDS. Many individual studies in this meta-analysis also showed improvements in muscle strength and psychosocial outcomes (O'Brien et al, 2008). The CD4 cell count and viral load were not affected by progressive resisted exercise or combined progressive resisted exercise and aerobic exercise. Results of this review should, however, be interpreted cautiously for a number of reasons. Firstly, the results are based on a small number of studies (n10). Secondly, the individual studies analysed had very small sample sizes and high participants' withdrawal rates. About half of the analysed studies had more than 15% participants' withdrawal rates. "Intention to treat" analysis was also not done limiting the ability to detect the effect of the participants' withdrawal on the results. The participants were also not blinded for progressive resisted exercises and this may have caused the Hawthorne effect. Performance bias may also have been induced by the increased level of interaction between the exercise participants and the investigators resulting in a more favourable outcome in the exercisers group when compared to the non-exercisers. As the studies included in this meta-analysis had a maximum duration of 16 weeks the long term benefits and side effects of progressive resisted exercises remain unclear. Furthermore, most of the participants in the individual studies were men in the middle age category. Thus, it limits the external validity of the results and ability to generalise results to women, young individuals or older adults living with HIV/AIDS.

While the physical and immunological benefits of physical activity participation are very important in people living with HIV, the psychological benefits are also important. Engagement in physical activities causes a reduction in the risk of poor mental health. It is also known to result in the alleviation of depression and anxiety, and in the process enhancing quality of life (Khan et al, 2012). Participation in exercise can also result in improvements in self-esteem and social interaction, as well as redress weight gain, insomnia, and poor physical appearance, which are common concurrent complaints among individuals with HIV/AIDS (Khan et al, 2012). This was also found by Wiest and Lyle (1997) who reported that engagement in physical activity participation resulted in a positive mood; improved self-esteem; raised confidence; and decreased symptoms of anxiety, stress, and depression. A study by Li et al (2009) confirmed a possible association of regular physical activity, health-related physical fitness, and some measures of health-related quality of life in Taiwan university students, and highlighted the need for universities to increase students' participation in regular physical activity. In this study inactive college students appeared to have lower emotional intelligence, health-related physical fitness, and perceived lower levels in their general and mental health. Several plausible mechanisms for physical activity effects on mental health were identified and these include improvements in fitness or weight loss, increased endorphin and enkephalin production following exercise, changes in central serotonergic systems from exercise and exercise effects on neurotransmitters such as norepinephrine (Li et al, 2009). The other possible mechanism suggested was that of positive emotional change resulting from changes in self-esteem due to mastering new skills, or from an increased sense of intrapersonal control or social support. The greatest limitation of this research by Li et al (2009) was its cross-sectional design which prevented them from establishing causality. Although there was a positive relationship between physical activity and mental health, they could not state that physical activity causes good mental health, because it is equally possible that physical activity is the effect of good mental health, as people with good mental health may simply be more likely to be active.

The discussed benefits above clearly show that the benefits of exercise far outweigh the adverse effects or risks. However, it is worthwhile to mention the risks of physical activity participation. According to Perez et al (2008) in addition to bone and muscle injuries, physical activity has

other adverse effects, some involving cardiovascular conditions, such as arrhythmias, sudden cardiac death, or myocardial infarction, and others associated with muscle conditions such as rhabdomyolysis (a syndrome caused by injury to skeletal muscles resulting in release of muscle fiber contents into the blood). A transient increase in risk of sudden cardiac death during the performance of vigorous exercise has been noted even in healthy men.

2.4 Physical activity protocols

Benefits associated with physical activity for the general population are clear and expectations of the type and amount of physical activity for healthy populations are identified in Healthy People 2010 national and state health care objectives (Clingerman, 2003). Healthy People 2010 classifies individuals as physically active if they admit to participating in moderate activities five or more times per week for at least 30 minutes, or three or more times per week for at least 20 minutes for vigorous activity (Clingerman, 2003). The same recommendations are made by the American College of Sports Medicine which recommends that all healthy adults aged 18–65 years need moderate-intensity aerobic (endurance) physical activity for a minimum of 30 minutes on five days each week or vigorous-intensity aerobic physical activity for a minimum of 20 minutes on three days each week (Parra-Medina and Messias, 2011). Combinations of the two types of activity are also acceptable. In 1992, a special communication from the Centers for Disease Control and Prevention (CDCP) made the following conclusion: “Every US adult should accumulate 30 minutes or more of moderate intensity physical activity on most, preferably all, days of the week” (Wiest and Lyle, 1997). The recommended intensity, frequency, and duration of the physical activity continues to be modified, depending on whether the target is health promotion, primary or secondary cardiovascular prevention, rehabilitation, or weight control, among others. One problem with these protocols is the subjectivity of the magnitude of intensity especially when it is measured by the IPAQ questionnaire. According to Fillipas et al (2010), low intensity activities to healthy individuals may be perceived as high intensity activities in persons living with HIV and AIDS because of the difficulties associated with living with such a chronic illness. A review by Perez et al (2008) recommended walking, jogging or running, swimming, cycling, or dancing at a moderate intensity (40% to 60% of the VO₂ max), with sessions of 30 to 45 minutes at least four or five days a week in hypertensive individuals. In patients with type 2 diabetes mellitus, aerobic exercises (75% of VO₂ max) performed for 45

minutes twice a week, plus 25 minutes of two-minute sets (85% of VO₂ max) with three-minute recovery periods (50% of the VO₂ max) once a week were recommended. It was noted that this resulted in a loss of 50% of abdominal fat and an increase in muscle mass of 23%, with a decrease in glycosylated haemoglobin levels and an increase in insulin sensitivity. For obesity they recommended aerobic exercises of at least 20 minutes a day, three days a week, with an intensity and duration sufficient to burn 300 kcal per session (Perez et al, 2008). Aerobic activities such as walking, running and cycling were noted to be effective in reducing body fat, whereas anaerobic activities such as weight lifting increase muscle mass as well as reducing the amount of fat.

It should be noted, however, that the current physical activity protocols are based on leisure time physical activities which represents only a small fraction of total daily energy expenditure therefore ignoring the accumulation of physical activities through activities of daily living, active transport and occupational activities (Bauman, 2004). Recent studies are now focusing on sedentary time, sitting time or measures of inactivity as being of interest in relation to health outcomes. New technologies for assessing step counts and all movement (pedometers and accelerometers) are being used for more accurate exposure measurements in general and specific population studies. Bauman (2004) argues that the leisure time physical activity component has remained mostly unchanged or only declined slightly. He concludes that the reasons for a reduction in energy expenditure were a decline in domestic and occupational physical activities and greater use of motorized modes of transport. He suggests that strategies likely to succeed in increasing population energy expenditure levels are related to policy, regulatory and environmental changes to re-engineer energy expenditure into everyday life as opposed to just focusing on leisure time.

2.5 Barriers to physical activity participation

The promotion of physical activity is encouraged in people living with HIV and AIDS as a means of promoting wellness and health. However, adherence to physical activity programmes is reduced by a number of barriers which have been identified by research. Researchers have suggested that exercise barriers should be assessed while motivation is present thus eliciting

‘true’ barriers as opposed to ‘reasons or excuses’ (Blaney et al, 2011). A complex combination of socioeconomic, cultural and demographic factors has been identified to influence physical activity participation (Wiest and Lyle, 1997). In any given context, it is likely that the level of engagement in regular physical activity participation is influenced by the complex interactions of these multiple factors at the individual, family, and community levels (Parra-Medina and Messias, 2011).

A study by Roos et al (2014) investigated the personal and environmental factors that result in barriers to physical activity participation in HIV-positive individuals in a home-based pedometer walking programme. Barriers to physical activity that were identified included physical complaints, e.g., low-energy levels; psychological complaints, e.g., stress levels; family responsibility, e.g., being primary caregivers; the physical environment, e.g., adverse weather conditions; social environment, e.g., domestic abuse and crime; and workplace, e.g., being in a sedentary job. Blaney et al. (2011) identified similar barriers to physical activity participation in a cancer population. The top ten barriers that interfered ‘often/very often’ with exercise participation were illness or other health problems, joint stiffness, fatigue, pain, lack of motivation, weather extremes, lack of facilities, weakness, lack of interest and fear of falling. It should however, be noted that in this study a convenience sample of cancer survivors from Northern Ireland with mainly stage one or two breast cancer, who were users of a supportive care cancer charity was used and as such the findings may not be generalisable to the wider cancer population. In addition, this may be a sub-group of cancer survivors who were more likely to seek services and more proactive in addressing their needs and possibly a group who experienced greater survivorship issues. The presence of other illnesses, for example, fibromyalgia, multiple sclerosis and chronic depression are known to be associated with fatigue, and as information was not collected on respondents’ comorbidities, it is possible that respondents were not suffering solely from cancer related fatigue.

In a study in Latino women, Parra-Medina and Messias (2011) identified barriers to physical activity participation as the dominance of work and family responsibilities, social norms, lack of social support, social isolation, environmental constraints, economics, and low levels of personal

knowledge and motivation. The possible explanations for these disparate levels of regular physical activity participation among Latinos ranged from cultural processes and practices, gender roles, and language barriers to limited social and economic resources, lack of exposure to physical activity-specific health education, and structural and environmental barriers (Parra-Medina and Messias, 2011). In a study in African-American adolescent girls, the engagement in recreational physical activity was influenced by time constraints from school and extracurricular activities and by neighborhood safety; furthermore participation in structured exercise was limited because of the cost and time related to maintenance of personal aesthetics (hair and nails) (Boyington et al, 2008). The lack of safety after school was cited most often as a physical environmental factor that negatively influenced physical activity habits (Boyington et al, 2008).

Demographic and social factors have been found to be important determinants of physical activity participation. Research by Wiest and Lyle (1997) found that non-whites are more likely not to exercise at all as compared to whites. This could be as a result of the fact that whites are better informed about the benefits of exercise as compared to non-whites. They also tend to be employed in high paying jobs and hence they can afford some costs which come with participation in physical activities. Gender has also been identified as an important factor as across all age groups, women are less likely to exercise than are men, and women who engage in exercise do so less frequently than men. This same conclusion was also found by Meseguer et al (2009) who showed that men were more active than women and compliance with the physical activity recommendations in men was 37.1% compared to 21.1% in women. Further, women's participation in exercise decreases with age, whereas men's participation remains relatively constant (Meseguer et al, 2009). The same study found that individuals with lower levels of education had higher metabolic expenditure in light activities whereas individuals with higher levels of education had higher metabolic expenditures in moderate and vigorous activities. This study had a number of weaknesses, though, which cannot be ignored. Firstly the self-report questionnaires could have limited the validity and reliability. The precision of estimates may be affected by recall bias and a tendency to exaggerate the amount of activity performed. Overestimation and a social desirability bias may have contributed to the problem (Fillipas et al, 2010). Secondly the questionnaire did not include housework and "getting around" activities.

However, the study was based on a large representative sample of the adult population with interviews being conducted throughout the year to control for possible seasonal variations.

Another study supporting the importance of gender as a determinant of physical activity participation was done by Ozdol et al (2012) where male college students of all ages were found to be more active than their female counterparts. It was also found in this study that students living in houses outside the university do more physical activities and have higher moderate and vigorous activity levels than other students living in dormitories. The conclusion was that student dormitories located within the university boundaries reduced the level of physical activity due to transportation and a lack of house and garden work. However, the weakness of this study is that random selection was not used and the number of study participants did not represent the population.

Education and economic status have also been found to influence physical activity participation. A study by Wiest and Lyle (1997) found that 50% of women without a high school diploma and living below the poverty level line have been reported not to exercise. Poverty influences access to medical care, quality of medical care, availability of and access to transportation, and knowledge regarding or time for self-care, including regular participation in physical activities.

2.6 Facilitators to physical activity participation

In an effort to solve the physical activity participation problem, research in the past two decades has employed theoretical models to better understand the factors that enhance physical activity participation (Ozdol et al, 2012). The social cognitive model that emphasizes the interaction of intrapersonal factors, the micro-environmental influences and the physical activity behavior, has gained empirical support (Ozdol et al, 2012). This has allowed researchers to identify cognitive (e.g. efficacy beliefs), affective, and social influences on the individual's choice to be active and to aid in the development of interventions to increase physical activity levels. Recently several studies have highlighted regional or community environmental characteristics that have demonstrated associations with physical activity, for example less urban sprawl, greater

neighborhood walking ability, and more access to places for physical activity (Parra-Medina and Messias, 2011).

A comprehensive study by Camliguney et al (2012) in school children concluded that “after school” programmes designed to promote physical activity and/or fitness resulted in numerous health benefits. Given these findings, incorporating physical activity-based interventions within the after “school setting” was suggested as a strategy to promote physical activity participation that could have immediate and potentially lasting benefits. The study also reported that youths attending after school programmes can receive up to a third of the recommended 60 minutes of daily moderate-to-vigorous physical activity. However, the limitation of this study was that the physical activity levels for the two groups under investigation, i.e. those participating in after school programs and those not participating, were both lower than the World Health Organization criteria.

As previously discussed men have been found to be more active than women. Women with higher incomes and level of education have also been found to be more likely to engage in exercise at least three times per week as compared to women with low income and education (Wiest and Lyle, 1997). However, it is possible that poorer women engage in more regular physical activity due to the likelihood of employment in positions requiring more manual labour and the unavailability of some modern conveniences (Wiest and Lyle, 1997). The new technologies and automation of many everyday activities in modern societies have greatly contributed to reducing physical activity at work and home (Valle et al, 2004).

Roos et al (2014) identified facilitators of physical activity in an HIV-positive population as support and encouragement from friends and family, religious practices during worship and community environment, e.g., having access to parks and sport fields. The top ten factors that respondents ‘agreed’ or ‘strongly agreed’ with, that would facilitate exercise participation in a cancer population was a programme that was: fun, included a variety of exercises, was gradually progressed, flexible, involved personal goal setting, included good music, tailored to the individual, included feedback and had approval by their oncologist or general practitioner

(Blaney et al, 2011). The main motivators of exercise were to improve quality of life and get fit (Blaney et al, 2011).

A study by Clingerman (2003) found that annual income was significantly correlated with weekly duration of vigorous physical activity. Significant relationships were also found between the amount of average functional social support and weekly frequency of moderate or vigorous 30-minute physical activity. The same study showed that the weekly duration of vigorous physical activity was significantly correlated with scores of general health status and CD4 count. Sedentary activity, captured as television viewing, demonstrated a significant inverse correlation with frequency of moderate or vigorous 30-minute physical activity. This study, however, had some limitations which should be addressed by future studies. Data collected was self-reported and it might have been difficult for participants to recall all information with accuracy. Previous studies have shown that participants may deliberately overestimate the amount of physical activity to impress the investigators. The other limitation is that the study sample had predominantly male participants and given that WHO estimates that there are more women infected with the virus, future investigations should be attuned to exploring gender-specific differences.

2.7 Physical Activity Context Preferences

2.7.1 Introduction

Strategies to increase physical activity participation may be more effective if they reflect people's interests. Affective responses, such as enjoyment, are important influences on physical activity participation; and positive responses are more likely to be derived from activities consistent with people's interests than activities that are not (Khan et al, 2012). According to Wiest and Lyle (1997) exercise programmes that promote activity as part of comprehensive programmes of health promotion and disease prevention, and which do not overemphasize sports that eliminate the less skilled, can give people confidence in their ability to be physically active. They also suggested that people should select activities that are enjoyable and easily incorporated into a daily lifestyle. Identifying the context of physical activity is consistent with various theories that highlight the role of the environment, setting, or situation as a determinant of behaviour (Khan et

al, 2012). Beauchamp et al (2007) pointed out that “understanding individual preferences is important; and physical activity preferences are linked to both adherence behaviours and various psychological responses related to physical activity”. They found that participants assigned to aerobic exercise classes that matched their preferences exhibited better attendance and expressed a stronger intention to continue their involvement with exercise than did participants assigned to a standardized class. They also concluded that when physically active adults are given the choice of different aerobic exercise modes they tend to display less negative affects than those participants who were not given a choice. Identifying the *type* of physical activities that people prefer is useful but an understanding of the physical activity *context* provides more descriptive information (Khan et al, 2012). Someone may, for example, prefer walking as a type of activity, but also have specific preferences for how, where and with whom this is done. For people with little intrinsic interest in physical activity, the context in which it is done may be particularly important for engagement and adherence (Khan et al, 2012).

Research on HIV-positive individuals’ activity preferences is, however, scarce. Studies on physical activity context preferences have been conducted in the cancer population (Blaney et al, 2011), middle aged individuals (Burton et al, 2012), those with psychological difficulties (Khan et al, 2012) and individuals with musculoskeletal conditions (Peeters et al, 2014) but no study could be found in the literature which determined physical activity context preferences in an HIV-positive population. The previous studies done on physical activity context preferences are of high quality with a large number of participants and almost all of them were part of a wider study or a census in which much information was sort. The discussion of physical activity context preferences has been divided into three subheadings, according to its arms of format, location and social setting preferences.

2.7.2 Format preferences

A disinterest or dislike of exercise is a commonly reported barrier to participation among adults in the general population. Research has shown that physical activity options with elements in addition to exercise may enhance enjoyment and promote engagement (Khan et al, 2012). In a study by Khan et al (2012) 60% of the distressed respondents preferred activities that “are not

just about exercise”. This was also reported by Peeters et al (2014) in their study in people with musculoskeletal conditions in which the respondents had a preference for activities that are not just about exercise. In another study by Blaney et al (2011) most cancer survivors suggested that motivational elements and strategies such as exercise being fun, incorporating music and variety, progressed, involving goal setting and feedback would facilitate them to exercise. At least 60% of the respondents in another study in middle aged adults who are at risk of inactivity indicated a preference for activities that are not just about exercise (Burton et al, 2012). A preference for activities that are not just about exercise may reflect a lack of enjoyment in exercise, which is a major barrier to activity participation (Burton et al, 2012). Less traditional forms of exercise (e.g. dance) may provide an atmosphere where good health or improved fitness is a by-product and other attributes are highlighted, such as fun, connecting with nature, or an intellectual challenge (Khan et al, 2012).

Research has shown a general dislike of vigorous activities in special populations. Khan et al (2012) explained that a disinterest in vigorous activities could reflect a desire to avoid strenuous movements seen as beyond the individual's capacity. Pain and breathing difficulties are common complaints among people in the special populations and both of these concerns could contribute to a preference against vigorous activities (Khan et al, 2012). In a study by Khan et al (2012) distressed respondents were less likely to prefer vigorous activities. This was also reported by Peeters et al (2014) who found that people with musculoskeletal conditions had lower preference scores for vigorous activities. They attributed this to a fear that vigorous intensity activities will be overly demanding and may increase symptoms such as pain. The same findings were also made by Burton et al (2012) who found that their respondents had lower odds to agree with a preference for activities that are vigorous. They attributed the preference against activities that are vigorous to poor health and fear of injury.

Costs has been identified previously as a potential barrier to activity for adults, and can include membership or access fees, associated resources (e.g. equipment, clothing) and indirect costs (e.g. travel) (Burton et al, 2012). Most research done in this area has shown that people prefer activities that involve little or no cost. Studies done by Khan et al (2012) in psychologically distressed individuals and Peeters et al (2014) in people with musculoskeletal conditions also

showed a preference for activities that involve little or no cost. In a study by Burton et al (2012) 75% of respondents also preferred activities at little or no cost.

The severity of musculoskeletal symptoms may vary from day to day and people with these conditions may prefer to adjust the intensity and types of activities to match capacity at that moment (Peeters et al, 2014). This causes people to have lower preference scores for activities that have a set routine or format. In a study by Burton et al (2012) adults had significantly lower odds to agree with a preference for activities at a fixed time with scheduled sessions. The flexibility helps adults to manage commitments. Time management problems and difficulty scheduling activities have previously been identified as barriers to activity participation among older adults. However, the high BMI group has been found to prefer activities that are done at a fixed time with scheduled sessions (Burton et al, 2012). This may indicate a desire for high levels of extrinsic support and structure (Burton et al, 2012). Scheduled sessions can create a routine and social commitment that also helps to maintain an ongoing participation.

2.7.3 Location Preferences

In a study by Khan et al (2012) in people with psychological difficulties approximately 85% of the distressed respondents preferred activities that can be done close to home. Studies have shown that people are more likely to use facilities located close to home than elsewhere (Parra-Medina and Messias, 2011; Khan et al, 2012; Peeters et al, 2014; Burton et al, 2012). Geographical convenience reduces time and travel demands so as to minimize daily difficulties. Lack of access to public or private transportation was noted to have limited women's engagement and involvement in exercise in the Texas border towns of San Juan and Alamo (Parra-Medina and Messias, 2011). The proximity or convenience of destinations and facilities is positively associated with activity participation. Safety issues have also been noted with some women reporting that their partners actually restrict their mobility outside the household due to safety concerns, jealousy, or insecurity (Parra-Medina and Messias, 2011). Over 60% of the respondents in the study by Khan et al (2012) preferred physical activities done outdoors. Outdoor exercises have additional benefits for psychological wellbeing when compared with indoor activities, and can result in moderate short-term reductions in anxiety and stress.

However, the sample of this study under-represented those with school only education, not in the workforce, and living in disadvantaged areas. Research has shown that these groups are more vulnerable to psychosocial difficulties. This study also used a generic measure of psychosocial distress (vs. specific diagnoses) and we can speculate that had specific diagnoses been used then different contextual preferences would have been found. A similar study by Peeters et al (2014) with a large sample of middle-aged participants with musculoskeletal conditions found that participants preferred activities that can be done close to home and outdoors. Two important strengths of this study are the large sample size and the method used to assess the physical activity context preferences (i.e. assessing each context independently). However, the limitation of the study is that it assessed 14 physical activity contexts and this may not have included all possible contextual factors. For example, arthritis patients may prefer water-based activities, but this was not assessed in this study. Another important limitation of this study is the self-report of arthritis and osteoporosis. Validation studies suggest poor to moderate/good agreement of self-reported arthritis with medical record data. Also participants who were excluded from the analyses, because of missing data on covariates, were more likely to have arthritis and/or osteoporosis, less education, lower income, and poorer health than participants who were included in the analyses. Because the physical activity context preferences of all these groups are not known, predictions cannot be made about what excluding these participants from the analysis means for the generalisability of the results. A study by Burton et al (2012) in middle aged adults indicated that over 80% of the respondents preferred activities that can be done close to home, and at least 60% preferred outdoor activities. However, in a study in a cancer population by Blaney et al (2011) about 40% had no preference for location and in the remaining 60% there were mixed opinions as to the preferred location as about half chose a leisure centre and the remaining half preferred to do their exercises at home. For some, the notion of exercising in public carries the risk of being judged negatively by others, resulting in people preferring to exercise at home or indoors. For example some women have reported that they are embarrassed to be seen out walking in public where others observe them and note, “she must not have anything to do” (Parra-Medina and Messias, 2011).

2.7.4 Social Setting Preferences

Research on social setting preferences has come up with conflicting results on whether individuals prefer to exercise alone or with others. Psychological theories - self-determination theory and belongingness theory - provide strong conceptual and empirical evidence that being with others is more innately natural than being alone (Beauchamp et al, 2007). Social support networks, especially significant others, can be important in providing emotional, psychological support and assistance. Support from family and friends has been found to influence participation in physical activity (Clingerman, 2003). However, people may prefer to exercise alone because of the negative social comparisons associated with, for example, poor ability, and unfavorable appearance (Burton et al, 2012). Beauchamp et al (2007) explored the similarity-attraction hypothesis implied in the “birds of a feather” expression and concluded that although older exercisers might report a dislike for exercising in groups primarily made up of younger participants, consistent with self-categorization theory and the similarity-attraction hypothesis, they could also report a strong positive preference to exercise in groups of adults of a similar age. Their research provided support for the suggestion that across the age spectrum, people do not report a stronger preference to exercise alone in comparison to age-matched group-based settings (Beauchamp et al, 2007). The strength of this study is that it sought to incorporate recognition that contextual congruence may be important when considering exercise preferences. Providing older adults with opportunities to exercise with others of a similar age may not only facilitate enhanced exercise adherence but may also provide them with invaluable social networks that extend beyond the exercise setting. However, in a study by Burton et al (2012) in a middle aged population 75% of the respondents’ preferred physical activities that can be done alone. Activities that are done alone reduce reliance on others, and avoid difficulties related to scheduling and shared access. A preference for solitary activities may present, if respondents anticipate the group to be composed of people of a different age group. This study had a limitation of under-representation of those with school only education, not in the workforce, and living in disadvantaged areas when compared to the national census data and this may have influenced the results as the same study found that socioeconomic factors influence contextual preferences. This study was also conducted in middle-aged adults meaning the results may not be generalisable to young and older adults. In a study in people with psychosocial difficulties distressed respondents had higher odds than those without distress to prefer activities that can be

done alone (Khan et al, 2012). A preference for activities that can be done alone could reflect a fear of social discrimination.

Research on the preference for supervised activities has shown that special populations prefer supervised activities more when compared to the general population. In a study by Khan et al (2012) distressed respondents had higher odds than those without distress to prefer supervised activities. This may reflect a need for extrinsic support because physical activity supervisors can motivate participation and enhance esteem and perceived competence, as well as provide feedback, and assist with goal setting and problem solving barriers, all of which may be compromised in times of psychological distress (Khan et al, 2012). A study by Peeters et al (2014) also had the same conclusion as people with osteoporosis had a stronger preference for supervision and the possible explanation for this could be that people with osteoporosis have a higher risk for fractures and supervised activities may be seen as safer toward reducing this risk (Peeters et al, 2014). In another study by Blaney et al (2011) in a cancer population most respondents preferred to receive supervision from a specialist nurse or a physiotherapist with the exercise programmes being tailored to each individual, and approved by their oncologist and general practitioner. Activity supervisors can assist with motivation (e.g. encouragement, feedback), provide individualized instruction on a suitable type and level of activities, emphasize the importance of participation instead of mastery and be the focus of a sense of social commitment, all of which have been positively associated with physical activity participation (Burton et al, 2012).

It has also been found that special populations are more likely than the general population to prefer physical activities done with people of the same gender. In a study by Khan et al (2012) psychologically distressed respondents were more likely than those without distress to prefer physical activities done with people of the same gender. As psychosocial difficulties can be characterized by feelings of social anxiety and low self-esteem, activities done with people of the same gender may be associated with less self-consciousness and interpersonal demands than activities done with people of the opposite gender (Khan et al, 2012). In another study, adults

with BMI greater than 30 were more likely than those with BMI less than 25 to prefer activities with people of the same gender (Burton et al, 2012).

It has been found that adults in low income groups are more likely than those in high income groups to prefer team-based activities (Burton et al, 2012). The preference for team-based activities may reflect sporting interests, for example, football and netball. Social support and social participation have been reported as positively associated with activity participation among socio-economically disadvantaged groups and team-based activities may, therefore, be an important source of social capital (Burton et al, 2012).

2.8.1 Instrument and outcome measure

A number of studies have been done which assessed physical activity context preferences in different populations. However, no study could be found in literature search which focused on HIV-positive individuals. The studies by Burton et al (2012) in adults at risk of inactivity, Peeters et al (2014) in individuals with musculoskeletal disorders and Khan et al (2012) in people with psychological distress used the same instrument. Physical activity context preferences were measured by asking participants the extent to which they agreed or disagreed with each of 14 physical activity contexts. The 14 statements were “I prefer activities that: I can do on my own; involve competition; are done with people around my age; can be done close to home; are done outdoors; require skill and practice; have a set routine or format; involve little or no cost; involve supervision; are team-based; are done at a fixed time; are done with people of my own gender; are not just about exercise; are vigorous.” Responses were recorded using a 5-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = no preference, 4 = agree, and 5 = strongly agree. The advantage with this instrument is that it assesses many contextual preferences and each context is assessed independently from others. However, its validity and reliability are not known and the argument by designers of the instrument is that no gold standard exists to compare it with.

Burke et al (2006) assessed physical activity context preferences in university students using a different instrument. The questionnaire was designed to examine the most and least preferred

contexts for both aerobic activity and weight training. To determine the most preferred context for aerobic activity, the following instructions were provided:

Examine the situations presented below. In which of these situations would you MOST prefer to participate in an aerobic activity (e.g. walking, jogging, biking, aerobics, etc.)? Then, the following four options were provided:

- (a) In a structured aerobics class (e.g. an aerobics class at a fitness center)
- (b) With other people outside of a structured aerobics class (e.g. walking/jogging with others outside or at a fitness center)
- (c) On your own in an exercise setting (e.g. walking/jogging on a treadmill at a fitness center)
- (d) Completely alone (e.g. walking/jogging alone).

The identical protocol was followed to determine the most preferred context for weight training as well as the least preferred contexts for both aerobic activity and weight training. Participants were asked to select only one of the four options presented above for each of the following: (a) their most preferred context for aerobic activity, (b) their least preferred context for aerobic activity, (c) their most preferred context for weight training, and (d) their least preferred context for weight training. One weakness of this instrument is that it only gives you the choice of four contexts yet there are many contexts in real life. The measure of preference is also done by two extremes, the most preferred and the least preferred ignoring the choices in between these two extremes.

In another study by Beauchamp et al (2007) older adults' preferences for exercising alone versus in groups were measured. They employed a strategy that assessed the extent to which participants preferred to exercise alone as well as exercise in different age-related groups. Specifically, they asked participants to rate on a five-point Likert-type scale ranging from -2 (very unappealing) to +2 (very appealing) each of the following four exercise settings: (a) exercising alone, (b) exercising in a group comprised mostly of people in their 20s and 30s, (c) exercising in a group comprised mostly of people in their 40s and 50s, and (d) exercising in a group comprised mostly of people in their 60s and 70s. The advantage of this instrument is that it asked participants to rate each context using a five-point Likert scale and this gives individuals

many choices. However, it does not capture all the contexts as individuals may prefer to do certain activities alone and at the same time other activities with others.

2.8.2 Self-reported health status

Many studies have investigated the determinants of self-reported health status. However, no studies could be found in literature which investigated the relationship between physical activity context preferences and self-reported health status. A study in Russia reported that poor health status was related to dysfunctional social structures, socioeconomic deprivation, and lack of perceived control (Bobak et al, 1998). The absence of informal social networks which is vital for maintaining general welfare was found to adversely affect self-rated health status of a population. They concluded that deprivation and low perceived control were important mediators between the broad social environment and health in populations undergoing transition and could provide a useful framework for many biological and behavioural factors (Bobak et al, 1998). Another study in Barbados reported similar findings that past socioeconomic experience influences self-reported health status in the elderly (Hambleton et al, 2005). They concluded that ongoing programs for poverty reduction, increasing access to health care and education should be considered as long-term strategies to improve the health of the future elderly population.

Baker et al (1997) observed low literacy to be strongly associated with poor self-reported health status. They also noted that low literacy was more closely associated with self-reported health status than number of years of school completed. The same conclusion was done by Malmström et al (1999) who found that individual education status in addition to neighbourhood socioeconomic environment were associated with poor self-reported health status.

The physical environment has also been determined to be an important predictor of self-reported health status. A study on health status of Persian Gulf war veterans found that several environmental factors were associated with increased health symptoms reporting after adjusting for war-zone stressor exposures and post-traumatic stress disorder (Proctor, 1998).

2.9 Conclusion

The benefits of physical activity participation have been explored and found to outweigh the side effects or risks. Barriers and facilitators to physical activity participation in the general

population and special populations have also been identified. The physical activity context preferences have been identified in the general population and other special populations which do not include the HIV-positive population. This shows a knowledge gap which needs to be closed by doing research on physical activity context preferences in HIV-positive individuals. The ideal instrument to use will be one that assesses more contextual preferences as all previous research recommended future studies to include more contexts.

Chapter 3

Methodology

3.0 Introduction

This chapter is discussed under the following subheadings.

- Study setting
- Study design
- Participants
- Instrumentation
- Pilot study
- Method of analysis
- Ethical considerations
- Conclusion

3.1 Study Setting

The study was conducted at United Bulawayo Hospitals' opportunistic infections clinic which treats HIV-positive individuals. United Bulawayo Hospitals is located in Bulawayo which is Zimbabwe's second largest city and is also considered a metropolitan province. It has two central hospitals of which United Bulawayo Hospitals is one of them. According to the Ministry of Health and Child Care, Zimbabwe, a central hospital is defined as one which offers specialist services. There are only six public central hospitals in Zimbabwe.

3.2 Study Design

A cross sectional survey was conducted at United Bulawayo Hospital's opportunistic infections clinic. The research team administered the questionnaires on Tuesdays and Thursdays over two consecutive weeks when the subjects came to collect their medication and to consult. Respondents indicated, on Likert scale, the extent of agreement or disagreement with a preference for each of the 19 contexts relating to format, location and social setting. The questionnaire items were a slight modification of those used by Burton et al (2014) in their study in Australia.

3.3 Participants

3.3.1 Population and sampling

A sample of convenience of 109 HIV-positive individuals (see power calculation below) was obtained from United Bulawayo Hospital's opportunistic infections clinic. Our sampling frame was the register for HIV-positive patients on antiretroviral medication kept at United Bulawayo Hospitals. Participants were approached as they came into the clinic and data were collected on Tuesdays and Thursdays during normal operating hours. The clinic attends to adult patients on these days of the week. Two research assistants, who are also physiotherapists, and I collected the data in two consecutive weeks. The number of participants who met the inclusion criteria and completed the questionnaires ranged from 20 to 30 each day. A staff member (nurse in charge) of the clinic introduced the research team to the participants and questionnaires were distributed whilst the patients were waiting for their turn to be attended to by the doctor. The nurse in charge announced to the participants who were waiting in a large waiting area that a research was being conducted and participants who were willing to participate could take part. The announcement was repeated in the other two vernacular languages and the objectives were clearly laid out. The questionnaires were then distributed to those who were willing to participate and individual explanations were given to those who had questions. Confidentiality and anonymity was ensured by giving each participant a code and then keeping the list of names and codes separately from the questionnaires. It should be noted that the HIV-status of those who visit the opportunistic clinic is not confidential as the clinic attends only to HIV-positive individuals.

The following inclusion and exclusion criteria were used to select participants.

3.3.2 Inclusion criteria

- 18 years of age or older.
- Self-disclosed HIV status.
- Able to read and write. The consent form was used to screen participants as those who were not able to read and write were excluded from the study.
- Individuals who were ambulatory without an assistive device and able to perform activities of daily living independently.
- Male and female,

3.3.3 Exclusion criteria

- Known cardiovascular, pulmonary, neurological or orthopaedic conditions.

3.3.4 Sampling

A sample of convenience was used.

3.3.5 Sample size determination

Using the sample size calculator by Penwarden (2014) where the population size of HIV positive individuals at United Bulawayo Hospitals is 8000 according to the records, distribution is 50%, margin of error is 10% and confidence level is 95% the true sample size is 95. This means we needed at least 95 participants and we were able to get 109 which is even better for our survey.

3.4 Instrumentation

A questionnaire (slight modification of the one used by Burton et al, 2014) containing 19 items was used to identify the physical activity context preferences related to format (how), location (where) and social setting (with whom) (Appendices 1, 2 and 3). We modified our questionnaire as our study only focused on physical activity context preferences but Burton et al (2014) did their study as part of a wider study in Brisbane, Australia, and so we just extracted the questionnaire items relating to physical activity context preferences. Permission was granted via email by Professor Burton to adapt and use the questionnaire in the study (Appendix 7). Respondents indicated the extent to which they agreed or disagreed with a preference for each of the contexts using a five-point Likert scale (strongly disagree, disagree, no preference, agree, and strongly agree). The questionnaire also asked for other social and demographic information that was relevant to this study. This included gender, household composition, education, employment status and overall health status. The questionnaire was translated into Ndebele and Shona, the two main local languages. Translation into Shona was done by the principal investigator, who is a Shona first language speaker, and was present during data collection. Translation into Ndebele was done by a Ndebele school teacher and one of the research assistance, a physiotherapist who is a Ndebele first language speaker, was available to explain the questions during data collection. Validity and intra-tester reliability were not tested. The argument by Professor Burton is that since it was used in a descriptive study no gold standard existed to compare it to. Backward translation of the Ndebele and Shona questionnaires was not done as competent Ndebele

(Research assistant) and Shona (Principal Investigator) speakers were available during data collection and these would explain any question related to the research.

3.5 Pilot Study

A pilot study was done prior to data collection. It was done to identify ambiguous questions in the questionnaire and to estimate the time needed for data collection. It also revealed the logistics in study design and a few modifications were done prior to the main study. The modifications were as follows:

- Two research assistants were recruited who helped in distributing, providing explanations and getting back the questionnaires from the study participants. The assistants are both physiotherapists and one of them is a Ndebele first language speaker. The assistants were briefed of the research and its objectives and were instructed to give similar input to the participants.
- We decided to buy 20 pens to give to the participants when completing the questionnaires in the main study as nine out of 10 of the participants in the pilot study did not have pens. The 20 pens were enough as we had between 20 and 30 participants on each day of data collection.

Ten questionnaires were piloted at United Bulawayo Hospital's opportunistic infections clinic following the procedure described for the main study. The results showed that an average of 10 minutes was needed to fill in the questionnaire. The questions were easy to understand and as had been anticipated no participants had problems understanding the questions. The participants were debriefed on the results of the logistics side of the pretest and their general reactions and how they felt about completing the questionnaire were noted. The participants reported that they were happy to participate in the study and suggested that whatever the outcome should be translated into improved physical activity participation.

3.6 Method of analysis

After data collection the Statistical Package for Software Sciences (SPSS Statistics – v23) was used for data analysis. In addition to data analysis, this version was also used for data management and data documentation. Descriptive statistics were used to describe, organise and summarise data and they included frequencies and percentages for categorical data, descriptions of central tendency (mean) and descriptions of relative position (range and standard deviation)

for continuous data. A statistician was consulted for assistance with regression analysis and associations of the variables.

Frequencies and percentages were calculated for this categorical data:

- Health status
- Gender
- Highest education attained
- Living arrangement and
- All 19 variables related to physical activity context preferences

Descriptions of central tendency (mean) and descriptions of relative position (range and standard deviation) were calculated for this continuous data:

- Age
- BMI
- Monthly income

Kendall's tau b was used to determine the association between the 19 physical activity context preferences and self-reported health status. A model which predicts the relationship was also formulated.

3.7 Ethical considerations

Prior to commencement of data collection, ethical clearance was obtained from University of the Witwatersrand Human Research Ethics Committee (Clearance Certificate Number M140539 – Appendix 8). Ethical clearance was also obtained from the Medical Research Council of Zimbabwe (Approval number MRCZ/B/667– Appendix 9). Written informed consent (Appendices – 1, 2 and 3) from the study participants was obtained before they took part in the study. Anonymity and confidentiality of data was ensured and maintained. Permission to conduct the study was also sought and granted from United Bulawayo Hospitals' Clinical Director (Appendix – 10). No remuneration or incentive was given to the participants for their participation in this study.

3.8 Conclusion

A simple methodology was used during the conduction of this descriptive study. After identifying the knowledge gap permission was sought from the relevant ethics committees and offices to carry out the study. Permission was also sought from Nicola Burton to adapt and use her questionnaire in this research and she was happy that we were carrying out this research. Data was then collected at UBH's opportunistic infections clinic and managed using the procedures outlined on the previous page.

Chapter 4

Results and Analysis of Results

4.1 Introduction

This chapter is divided into two sections, the first one describing demographic information and the second one describing physical activity context preferences in answer to the objectives. Tables were used in describing these results. Frequencies and percentages were calculated for categorical data and descriptions of central tendency (mean) and descriptions of relative position (range and standard deviation) were calculated for continuous data. They were used in coming up with conclusions for the social setting, location and format preferences of the HIV-positive individuals at United Bulawayo Hospitals. Kendall's Tau b analysis was done to assess the association between physical activity context preferences and self-reported health status.

4.2 Demographic Information

One hundred and nine participants were interviewed out of the targeted 95. All the questionnaires we distributed were returned as they were completed whilst the research team was waiting and they are all included in the analysis.

BMI was calculated from self-reported height and weight using the formula:

$$\text{BMI} = \text{weight (kgs)} / \text{height (m)}^2$$

Table 4.1 on the next page summarises the baseline demographic characteristics of the study participants (n=109)

Table 4. 1: Baseline demographic characteristics (n=109)

Variable	Distribution of variable x (percent)
Description of health status <ul style="list-style-type: none"> • Excellent • Very good • Good • Fair • Poor 	23 (21.1%) 23 (21.1%) 36 (33.0%) 26 (23.9%) 1 (0.9%)
Gender <ul style="list-style-type: none"> • Male • Female 	44 (40.4%) 65 (59.6%)
Body mass index(kg/m ²) <ul style="list-style-type: none"> • 15-20 • 21-25 • 26-30 • 31-35 	(20.26 +/- 14.0) 27 (24.8%) 43 (39.4%) 25 (22.9%) 14 (12.8%)
Age (years) <ul style="list-style-type: none"> • <20 • 21-40 • 41-60 • 61-90 	(45.4 +/- 11.9) 1 (0.9%) 35 (32.1%) 63 (57.8%) 10 (9.1%)
Qualifications <ul style="list-style-type: none"> • <Form 2 • High school • Certificate • Diploma • Degree 	50 (45.9%) 46 (42.2%) 7 (6.4%) 5 (4.6%) 1 (0.9%)
Monthly Income (US\$) <ul style="list-style-type: none"> • <200 • 201-400 • 401-600 • 601-800 • >800 • Don't know/want 	(212.70 +/- 226.33) 81 (74.3%) 9 (8.3%) 9 (8.3%) 2 (1.8%) 2 (1.8%) 6 (5.5%)
Number of people in the household <ul style="list-style-type: none"> • 0-5 • 6-10 • >10 	65 (59.6%) 41 (37.6%) 3 (2.8%)
Living Arrangement <ul style="list-style-type: none"> • Living alone • Single living with children/friends • Couple living with no children • Couple living with one or more children 	7 (6.4%) 28 (25.7%) 12 (11.0%) 52 (47.7%)

4.3 Physical activity context preferences

4.3.1 Format Preferences

Table 4.2 below shows the distribution of physical activity format preferences.

Table 4. 2: Distribution of format preferences (n=109)

	Extent of preference for physical activity context				
Physical activity context	Strongly Disagree	Disagree	No preference	Agree	Strongly Agree
Involve competition	12 (11.0%)	35 (32.1%)	15 (13.8%)	35 (32.1%)	12 (11.0%)
Are vigorous	8 (7.3%)	33 (30.3%)	21 (19.3%)	33 (30.3%)	14 (12.8%)
Involve little or no cost	12 (11.0%)	15 (13.8%)	12 (11.0%)	51 (46.8%)	19 (17.4%)
Are structured with a set routine or format	10 (9.2%)	15 (13.8%)	20 (18.3%)	46 (42.2%)	18 (16.5%)
Involve supervision	6 (5.5%)	16 (14.7%)	23 (21.1%)	42 (38.5%)	22 (20.2%)
Are done at a fixed time	8 (7.3%)	17 (15.6%)	15 (13.8%)	53 (48.6%)	16 (14.7%)
Are not just about exercise	9 (8.3%)	19 (17.4%)	22 (20.2%)	48 (44.0%)	11 (10.1%)
Require skill and practice	8 (7.3%)	13 (11.9%)	16 (14.7%)	51 (46.8%)	21 (19.3%)
Use the latest equipment	7 (6.4%)	21 (19.3%)	18 (16.5%)	51 (46.8%)	12 (11.0%)

The distribution of preference for activities that involve competition is bimodal with the modes being disagree and agree (32.1%) (n=35). The distribution of the preference for activities that are vigorous is also bimodal with 30.3% (n=33) agreeing with a preference for these activities while the same percentage disagreed.

Most of the participants agreed (agreed or strongly agreed) with a preference for activities that involve little or no cost, are structured with a set routine or format, involve supervision, are done at a fixed time, are not just about exercise, require skill and practice and use the latest equipment.

4.3.2 Location Preferences

Table 4.3 below shows the distribution of location preferences.

Table 4. 3: Distribution of location preferences (n=109)

	Extent of preference for physical activity context				
Physical activity context	Strondly Disagree	Disagree	No preference	Agree	Strongly Agree
Can be done close to home	9 (8.3%)	16 (14.7%)	15 (13.8%)	54 (49.5%)	15 (13.8%)
Are done at home	9 (8.3%)	11 (10.1%)	19 (17.4%)	55 (50.5%)	15 (13.8%)
Are done outdoors	6 (5.5%)	21 (19.3%)	18 (16.5%)	52 (47.7%)	12 (11.0%)

More than half of the participants agreed (agreed or strongly agreed) with a preference for activities that could be done close to home, at home and outdoors.

4.3.3 Social setting preferences

Table 4.4 below shows the distribution of social setting preferences.

Table 4. 4: Distribution of social setting preferences (n = 109)

	Extent of preference for physical activity context				
Physical activity context	Strondly Disagree	Disagree	No preference	Agree	Strongly Agree
I can do on my own	9 (8.3%)	7 (6.4%)	6 (5.5%)	59 (54.1%)	28 (25.7%)
Are done with others	7 (6.4%)	14 (12.8%)	16 (14.7%)	59 (54.1%)	13 (11.9%)
Are done with people of my own gender	9 (8.3%)	26 (23.9%)	21 (19.3%)	42 (38.5%)	11 (10.1%)
Are done with people around my age	9 (8.3%)	15 (13.8%)	17 (15.6%)	52 (47.7%)	16 (14.7%)
Are done with people at my level of ability	11 (10.1%)	16 (14.7%)	12 (11.0%)	54 (49.5%)	16 (14.7%)
Are done in a small group	8 (7.3%)	20 (18.3%)	15 (13.8%)	57 (52.3%)	9 (8.3%)
Are team based	9 (8.3%)	20 (18.3%)	15 (13.8%)	50 (45.9%)	15 (13.8%)

Over half of the participants agreed (agreed or strongly agreed) with a preference for activities they could do on their own, with others, with people of their on age, with people at their level of ability, in a small group and team based as well.

Fewer of the respondents (48.6%) (n=109) agreed with a preference for activities that are done with people of the same gender. However, the mode was to agree with a preference for activities that are done with people of the same gender.

4.4 Association between physical activity context preferences and self-reported health status

No significant association was determined between the preferences for 18 physical activity contexts and self-reported health status. However, a significant association was evident between the preference for activities done with people of the same gender and self-reported health status. The association is illustrated in table 4.5 below.

Table 4. 5: Association between physical activity context preferences and self-reported health status

Physical activity contexts	P - Value	Association between physical activity context preferences and Self-reported health status
Activities I can do on my own	.404	.081
Activities that involve competition	.930	-.009
Activities I can do with people around my age	.355	.089
Activities can be do close to home	.175	.131
Activities I can do outdoors	.342	-.092
Activities that require skill and practice	.960	-.005
Activities that are structured with a set routine and format	.731	.033
Activities that involve little or no cost	.650	-.044
Activities that involve supervision	.107	.155
Activities that are team-based	.646	-.045
Activities done at a fixed time	.178	.130
Activities that are done with people of my own gender	.007	.259**
Activities that are not just about exercise	.744	.032
Activities that are vigorous	.402	.081
Activities that are done with others	.130	.146
Activities that are done in a small group	.509	-.064
Activities that are done at home	.384	.084
Activities I can do with people at my level of ability	.825	.021
Activities that are done with latest equipment	.206	.122

** . Association is significant at the 0.01 level (2-tailed).

There is a significant correlation between the preference for activities they can do with people of the same gender and self-reported health status at one percent level.

Table 4. 6: Model of the influence of the preference for activities they can do with people of the same gender on self-reported health status

Coefficients^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.818	.305		5.958	.000
	Preference for activities they can do with people of the same gender	.248	.090	.259	2.760	.007
a. Dependent Variable: Self-reported health status						

4.5 Conclusion

More than half of the participants agreed (agreed or strongly agreed) with a preference for activities that involve little or no cost, are structured with a set routine or format, involve supervision, are done at a fixed time, are not just about exercise, require skill and practice, use the latest equipment. They also agreed with a preference for activities they can do on their own, with others, with people of their own age, with people at their level of ability, in a small group and that are team based. As far as location preference is concerned they agreed with a preference for activities that can be done close to home, at home and outdoors.

However, they did not show a preference for activities that are vigorous or involve competition. Fewer of the respondents (48.6%) (n=109) agreed with a preference for activities that are done with people of the same gender although the mode was to agree with a preference for these activities.

As far as the association between physical activity context preferences and self-reported health status is concerned it was only significant between the preference for activities done with people of the same gender and self-reported health status.

Chapter 5

Discussion

5.0 Introduction

In this chapter the findings of the physical activity context preferences of HIV-positive individuals at UBH will be discussed comparing the results with previous literature and exploring the reasons for any possible deviation from earlier research. The physical activity context preferences are discussed as per category of information outlined namely format, location and social setting preferences. The association between the preferences for activities they can do with people of the same gender and self-reported health status is also discussed.

5.1 Physical Activity Context Preferences

5.1.1 Format Preference

The participants did not show any preference for activities which are vigorous or which involve competition. Previous research has shown that special populations do not like activities which are vigorous or involve competition as they believe that these activities will exacerbate their conditions. Khan et al (2012) explained that a disinterest in vigorous activities could reflect a desire to avoid strenuous movements seen as beyond the individual's capacity. Pain and breathing difficulties (Ezema et al, 2015) are common complaints among people with HIV and both of these concerns could contribute to a preference against vigorous activities. In a study by Khan et al (2012) distressed respondents were less likely to prefer vigorous activities. This was also reported by Peeters et al (2014) who found that people with musculoskeletal conditions had lower preference scores for vigorous activities. They attributed this to a fear that vigorous intensity activities will be overly demanding and may increase symptoms such as pain and dyspnoea. The same findings were also found by Burton et al (2012) who found that their respondents had lower odds to agree with a preference for activities that are vigorous. They attributed the preference against activities that are vigorous to poor health and fear of injury. The same reasoning can be applied to HIV as the disease is characterized by musculoskeletal and neurological changes resulting in reduced muscle strength and balance (Mkandla et al, 2013). Physical activities which are vigorous and involve competition require more effort and exposure resulting in discomfort (Mkandla et al, 2013).

The majority of the participants (64.2%) preferred activities which involved little or no cost. Cost has been identified as a barrier to physical activity participation (Burton et al, 2012). This was noted in previous research on physical activity context preferences and barriers to physical activity participation. Approximately 85% of people with psychosocial distress agreed with a preference for activities that involve little or no cost (Khan et al, 2012). Studies by Peeters et al (2014) in people with musculoskeletal conditions and Burton et al (2012) in individuals at risk of inactivity also showed that people preferred activities that involve little or no cost. The costs can come in the form of clothing, transport money and club fees. It can also be the cost of equipment and supervision. Most participants (82.6%) earn less than \$400 which is the poverty datum line and more than half (74.3%) actually earn less than \$200. Therefore it is understandable why they would prefer activities which involve little or no costs.

In our study, participants preferred physical activities which are structured with a set routine (58.7%) and done at a fixed time (63.3%). Our results are similar to those of Burton et al (2012) who found that people with high BMI prefer activities done at a fixed time with scheduled sessions. The preference for these activities reflects a fear of responsibility as the routine and time are already set. It also indicates a desire for high levels of extrinsic support and structure (Burton et al, 2012). Scheduled sessions can create a routine and social commitment that also helps to maintain an ongoing participation. Due to the nature of their conditions special populations are not confident about themselves. The fact that there is a set routine and time means they have offloaded part of their responsibility. Our results on the preference for activities with a set routine and done at a fixed time differ from those of Peeters et al (2014) who found the respondents to have lower preference scores for activities that have a set routine or format. It should, however, be noted that this study focused on people with osteoarthritis and osteoporosis and the severity of musculoskeletal symptoms varies from day to day and people with these conditions may prefer to adjust the intensity and types of activities to match capacity at that moment (Peeters et al, 2014). Therefore if it was not for the fact that the symptoms of their participants vary from day to day we may have expected them to have gotten the same results as us.

The need to avoid responsibility is also seen in the preference for activities that involve supervision (58.7% of the participants). Research on the preference for supervised activities has shown that special populations prefer supervised activities when compared to the general population (Burton et al, 2012). In a study by Khan et al (2012) individuals with psychological distress had higher odds than those without psychological distress to prefer supervised activities. This may reflect a need for extrinsic support because physical activity supervisors can motivate participation and enhance esteem and perceived competence, as well as provide feedback, and assist with goal setting and problem solving barriers, all of which may be compromised in special populations (Khan et al, 2012). The preference for supervision also reflects a need for social capital. The distribution of the qualifications shows that most of the individuals lack professional qualifications. Only 11.9% have a certificate, diploma or a degree. Low levels of education may reduce their confidence and comes with a perception that they need supervision in order to be able to follow instructions properly.

In this study, over half of the participants (54.1%) preferred activities that are not just about exercise. Lack of enjoyment has been identified as one of the barriers to physical activity participation (Peeters et al, 2014). Even in those with little interest in exercise the fact that the physical activities are exciting can motivate them to exercise. Activities like dancing, sponsored walks and charity races are examples where the benefits of exercise are positive side effects of the enjoyment and charity. Research has shown that physical activity options with elements in addition to exercise may enhance enjoyment and promote engagement (Khan et al, 2012). Studies have shown that people prefer activities that “are not just about exercise” (Burton et al, 2012; Peeters et al, 2014; Khan et al, 2012). In another study by Blaney et al (2011) most cancer survivors suggested that motivational elements and strategies such as exercise being fun, incorporating music and variety, progressed, involving goal setting and feedback would facilitate them to exercise. So HIV-positive individuals have shown a preference for physical activity programmes which incorporate additional elements which improve enjoyment whilst exercising.

The majority of the participants (68%) in this study preferred activities that require skill and practice. Activities that require skill and practice demand more time from the participants as the

majority of time is spent in training and a lesser amount in actual performance (Helsen et al, 1998). The personal investment of time and effort, during practice, is seen as an important predictor of commitment (Helsen et al, 1998). Therefore the preference for activities that require skill and practice may be seen as an investment with commitment to increasing or improving skill. The preference for activities that require skill may also reflect a need to attain self-satisfaction as a result of accomplishing or mastering the skill.

A majority of the participants (57.8%) preferred activities that use the latest equipment. Consumers are becoming more demanding and searching for new experience, thus in order to satisfy their needs there is a need for wellness-fitness equipment manufacturers to remain innovative (Tamuliene, 2013). The preference for latest equipment demonstrates the belief that modern equipment is more effective for achieving the objectives of exercise or physical activity participation. The latest equipment will usually include the accelerometers, pedometers, treadmills, stationery bikes and home gym kits. It is also usually very expensive and this brings out the perception that cost or expense is proportional to effectiveness. However, there is a contradiction in the participants' preference for latest equipment and at the same time preferring activities that involve little or no cost.

5.1.2 Location Preference

A preference for activities that can be done close to home was seen in the results of this study (63.3% of the participants). Previous studies have also found that participants preferred activities that can be done in the vicinity of their homes (Parra-Medina and Messias, 2011; Khan et al, 2012; Peeters et al, 2014; Burton et al, 2012). Geographical convenience reduces time and travel demands so as to minimize daily difficulties. The lack of access to public or private transportation was noted to have limited women's engagement and involvement in exercise in the Texas border towns of San Juan and Alamo (Parra-Medina and Messias, 2011). The proximity or convenience of destinations and facilities is positively associated with activity participation. Safety issues have also been noted with some women reporting that their partners actually restrict their mobility outside the household due to safety concerns and jealousy (Parra-Medina and Messias, 2011). Some participants who undertake physical activities outside their homes have reported being mugged whilst exercising (Roos et al, 2014).

Our study also had more female than male participants and therefore the need for safety may have contributed to the preference for activities that are done close to home. The study also shows that many participants (64.2%) preferred activities they can do at home. Activities people are able to do at home help to counter the stigma and discrimination associated with HIV. For some, the notion of exercising in public carries the risk of being judged negatively by others resulting in people preferring to exercise at home or indoors. For example some women have reported that they are embarrassed to be seen out walking in public where others observe them and note, “she must not have anything to do” (Parra-Medina and Messias, 2011). Due to the body changes associated with living with the HIV disease and also as a result of the medication people may prefer to do the exercises at home. According to the criteria by Meseguer et al (2009) only 39.5% of participants in our study had normal weight with the rest being obese, overweight or underweight.

The majority of the participants (58.7%) preferred activities that can be done outdoors. Outdoor activities allow people to interact with the natural environment when they are exercising. Outdoor facilities are also easier and cheaper to construct and are ideal when doing aerobic exercises such as walking, jogging and cycling. Over 60% of the respondents in a study by Khan et al (2012) preferred physical activities done outdoors. Outdoor exercises also offer additional benefits for psychological wellbeing when compared with indoor activities, and can result in moderate short-term reductions in anxiety and stress (Khan et al, 2012). However, outdoor facilities are prone to being affected by weather elements unlike the indoor facilities.

5.1.3 Social setting preference

Most of the participants (66%) preferred to do activities which are done with others. Social support networks, especially significant others, can be important in providing emotional and psychological support, and assistance. Support from family and friends has been found to influence participation in physical activity (Clingerman, 2003). The need for social support is reflected in that most participants live as couples with one or more children. Those participants who do not live as couples either live with their children or with friends. The number of individuals living in a household ranges to as high as ten.

Most participants (78.8%) also reported a preference for activities they can do on their own. A preference for activities that can be done alone could reflect a fear of social discrimination (Khan et al, 2012). Activities which people can do on their own reduce reliance on others, and avoid difficulties related to scheduling and shared access which can be a barrier to physical activity participation (Peeters et al, 2014). It is known that people with HIV suffer a lot of stigma and discrimination. Being able to do physical activities alone helps to counter discrimination as they are able to conduct physical activities alone. People may prefer to exercise alone because of the negative social comparisons associated with, for example, poor ability, and unfavorable appearance (Burton et al, 2012). In a middle aged population 75% of the respondents preferred physical activities that can be done alone (Burton et al, 2012).

At first sight the finding that participants prefer to exercise alone seems to contradict the first finding that the participants also preferred to exercise with others. Beauchamp et al (2007) explored the “similarity-attraction hypothesis” implied in the “birds of a feather” metaphor and concluded that although older exercisers might report a dislike for exercising in groups primarily made up of younger participants, consistent with self-categorization theory and the “similarity-attraction hypothesis”, they could also report a strong positive preference to exercise in groups of adults of a similar age. The implication at this juncture is that HIV-positive individuals might prefer to exercise with others provided the individuals do not differ from them. If the individuals are perceived to differ from them then HIV-positive individuals will report a preference to exercise alone.

This study confirms the results also found in previous research that special populations prefer to exercise with people of similar age (62.4%), people of the same gender (high odds on favourite) and people at the same level of ability. A preference to do physical activities with people at the same level of ability may reflect the need to avoid comparison with those who are perceived to be stronger physically. People with HIV experience a lot of ailments which reduce their skills and strength and in the end fear being looked at differently. So activities which are done with others at the same level of ability reduce the fear that they will not perform their physical activities as expected (Burton et al, 2012). However, the exclusion criteria excluded those with

known cardiovascular, pulmonary, neurological or orthopaedic conditions meaning that our participants were physically strong and the results also show that most of the participants (75.2%) described their health status as being good, very good or excellent. Thus one may argue that participants in this study perceived their health status as being similar to those who are not HIV-positive.

Doing activities with others of the same gender and age presents a form of social capital which is important in this group of individuals. Physical activities done with people of the same gender also reduce the fear that the opposite gender will perform better than them. The same argument also holds for the preference for activities that are done with people of the same age. There is a general perception that younger individuals are more energetic and will perform better when it comes to physical activities and therefore older individuals fear that their performance will be compared to that of younger individuals (Beauchamp et al, 2007). Younger individuals may also fear that they will not attain their full potential if they exercise with individuals who are perceived to be weaker (Beauchamp et al, 2007).

Over half of the participants (59.6%) preferred activities that are team based. Team based activities increase reliance on others for performance (Burton et al 2012). In a team the group's performance and achievements are difficult to separate from those of individual entities. Strong and better performing members tend to pull weak and under-performing individuals to be at par with them. Group therapy or team-based activities are presumed to have additional benefits as group members would support each other and strengthen their motivation to continue exercising (Jannsen et al, 2009). Given the current limited rehabilitation resources in developing countries, community-based group exercise programs are accessible to larger numbers of individuals and will be beneficial to many members of the community (Eng et al, 2003). Most participants (60.4%) also showed a preference for activities that are done in a small group. Preference for activities which are done in small groups portrays an in-built desire to get maximum attention. In a big group individuals perceive that they will not get maximum attention from the team leader and other team members. The potential to adapt to personal circumstances is greater in individual therapy and smaller groups than for bigger group (Jannsen et al, 2009).

5.2 Association between physical activity context preferences and self-reported health status

There was a weak association ($r=0.259$ at 1% level) between the preference for activities individuals with HIV can do with people of the same gender and self-reported health status. However, there was no association between all the other 18 physical activity context preferences and self-reported health status. Studies have found that self-reported health status can be predicted by socio-economic, psychosocial, behavioural, demographic and physical environmental factors (Baker et al, 1997; Bobak et al, 1998; Proctor et al, 1998; Hambleton et al, 2005; Malmström et al, 1999). These factors found in the previous studies are not just predictors but are also causative in nature.

It should be remembered that association does not imply causation. The weak association between the preferences for activities they can do with people of the same gender and self-reported health status is most likely being caused by the behavioural and psychosocial factors. We know from previous studies (Hambleton et al, 2005; Malmström et al, 1999; Khan et al, 2012) that they affect both self-reported health status and contextual preferences. Therefore we have two variables (preference for activities they can do with people of the same gender and self-reported health status) which are more likely being affected by the same variables resulting in the association.

Chapter 6

Conclusion and Recommendations

6.1 Conclusion

The research identified the physical activity location, format and social setting preferences of HIV-positive individuals at UBH. Our research found that people with HIV prefer to do physical activities that can be done at their homes, close to their homes and outdoors. They prefer activities which are done close to home and in the vicinity of their homes as geographical convenience reduces time and travel demands so as to minimize daily difficulties. They also prefer activities which are done outdoors as these activities help them to interact with the environment and improve their psychological well-being.

HIV-positive patients may also prefer to do physical activities on their own if they perceive the group to be composed of individuals who have different characteristics to them. Activities which people can do on their own reduce reliance on others, and avoid difficulties related to scheduling and shared access which can be a barrier to physical activity participation. However, they may also prefer to do physical activities with others in a small group if the group is composed of individuals of the same gender, age and level of ability. Social support networks, especially significant others, can be important in providing emotional and psychological support, and assistance. Support from family and friends has been found to influence participation in physical activity. Individuals with HIV also prefer team-based activities. Team-based activities are presumed to have additional benefits as team-members support each other and strengthen their motivation to continue exercising.

Individuals who are HIV-positive prefer activities that require skill and practice and use the latest equipment. The personal investment of time and effort, during practice, is seen as an important predictor of commitment. HIV-positive individuals also prefer activities are structured with a set routine or format and are done at a fixed time. Scheduled sessions create a routine and social commitment that also helps to maintain an ongoing participation. They also prefer activities that involve little or no cost. Cost is known to be a barrier to physical activity participation. A preference for activities that involve supervision was also noted. They prefer activities which

involve supervision because supervisors can motivate participation and enhance esteem and perceived competence, as well as provide feedback, and assist with goal setting and problem solving barriers. HIV-positive people also prefer activities which are not just about exercise. It has been shown that physical activity options with elements in addition to exercise may enhance enjoyment and promote engagement. However, HIV-positive individuals did not show a preference for activities that are vigorous or involve competition. Physical activities which are vigorous and involve competition require more effort and exposure resulting in discomfort.

There was no association between physical activity context preferences and self-reported health status in HIV-positive individuals except for the preference of activities they can do with individuals of the same gender ($r=0.259$ at 1% level). The influence of behavioural and psychosocial factors could be causing this weak association between the preference for activities they can do with people of the same gender and self-reported health status.

6.2 Recommendations

The study did not attempt to explore the stage of HIV infection as this may have an effect on the physical activity context preferences. Individuals at different stages of infection encounter different challenges and this may affect their preferences. The study only investigated those taking antiretroviral medication excluding those who are not yet receiving antiretroviral medication. In Zimbabwe the government policy on giving antiretrovirals free of charge dictates that those on Stage 1 of the disease do not get medication because of scarcity of resources hence they are not referred to the opportunistic infections clinic. According to WHO stage 1 of HIV infection is the asymptomatic stage of the disease. This means that almost all of the participants were on stages 2, 3 and 4 of HIV infection. Future investigations should attempt to get the stages of infection for the participants from their medical records and preferences at different stages of infection can be identified. Research has shown that all the stages of viral infection will benefit from physical activity participation and therefore the identification of physical activity context preferences at all the stages of HIV-infection will help in improving compliance with physical activity prescriptions from healthcare practitioners.

A sample of convenience was used to recruit participants' receiving medication from a government hospital who are likely to be from a low socio-economic level. Due to deteriorating

standards of service in government hospitals most people shun them and seek services at private facilities. The sampling did not include those who are socio-economically advantaged who may seek treatment in private health facilities. Future investigations should attempt to get a random sample representative of the entire HIV-positive Zimbabwean population so that the preferences are more representative of the population.

Information gained from this research can be used by local authorities and town planners to build recreational facilities close to where people live and these facilities can come in the form of parks, foot paths, cycle tracks and recreational centers. The costs for accessing such facilities should be low as many people who are HIV-positive cannot afford high fees. Healthcare practitioners should encourage people who are HIV-positive to form small groups for physical activity participation and the groups should compose of people with similar characteristics like age, gender and level of ability. The practitioners can also make a great contribution by providing supervision as this together with support from family and friends has been found to be a form of social capital. The supervision can involve selection of activities that require skill and practice, scheduling of time and format, encouragement and providing answers to questions. Future investigations can also assess the levels of ability of HIV-positive individuals when collecting baseline demographic so that the preferences for those at different levels of ability can also be known. The researcher and other physiotherapists can compile guidelines on physical activity participation by HIV-positive individuals based on the context preferences established from this research.

6.3 Limitations of the investigation

- The study assessed 19 physical activity context preferences, but this may not have included all possible contexts e.g. HIV-positive individuals may prefer water-based activities, but this was not assessed in this study.
- As the study was conducted with individuals above 18 years of age, the results may not be generalisable to younger individuals who are HIV-positive.
- Validity and reliability of translated questionnaires were not established.

References

- Badura, B., 1991. Introduction: Health promotion for chronically ill people. *Health Promotion: Towards a new social epidemiology*, Volume 37, pp. 365-392.
- Baker, D. W. et al., 1997. The relationship of patient reading ability to self-reported health and use of health services. *American Journal of Public Health*, 87(6), pp. 1027-1030.
- Bassett, D. R. & Holley, E. T., 2000. Limiting factors for maximum oxygen uptake and determinants of endurance performance. *Medicine and Science in Sports and Exercise*, 32(1), pp. 70-84.
- Bauman, A. E., 2003. Updating the evidence that physical activity is good for health: an epidemiological review 2000-2003. *Journal of Science and Medicine in Sport*, 7(1), pp. 6-19.
- Beauchamp, M. R., Carron, A. V., McCutcheon, S. & Harper, O., 2007. Older Adults' Preference for Exercising Alone Versus in Groups: Considering Contextual Congruency. *Ann Behav Med*, 33(2), pp. 200-206.
- Blaney, J. M. et al., 2013. Cancer survivors' exercise barriers, facilitators and preferences in the context of fatigue, quality of life and physical activity participation: a questionnaire - survey. *Psycho-Oncology*, Volume 22, pp. 186-194.
- Bobak, M. et al., 1998. Socioeconomic factors, perceived control and self-reported health in Russia. A cross-sectional survey. *Soc Sci Med*, 47(2), pp. 269-279.
- Boyington, J. E. A. et al., 2008. Cultural Attitudes Towards Weight, Diet, and Physical Activity Among Overweight African American Girls. *Centers for Disease Control and Prevention*, 5(2).
- Brown, D. & Batterham, M., 2001. Nutritional management of HIV in the era of highly active antiretroviral therapy: A review of treatment strategies. *Australian Journal of Nutrition and Dietetics*, 58(4), pp. 224-234.
- Brown, W. J. et al., 2004. Test-retest reliability of four physical activity measures used in population surveys. *J Sci Med Sport*, 7(2), pp. 205-215.

- Burke, S., Carron, A. & Eys, M., 2006. Physical Activity Context Preferences of University Students. *Psychology of Sport and Exercise*, 7(1), pp. 1-13.
- Burress, J., Christiani, D. & Berwick, D. M., 1997. Counseling to Promote Physical Activity. *Prim Care Update Ob/Gyns*, 4(3), pp. 97-105.
- Burton, N. W., Khan, A. & Brown, W. J., 2012. How, where and with whom? Physical activity context preferences of three adult groups at risk of inactivity. *British Journal of Sports Medicine*, Volume 46, pp. 1125-1131.
- Camliguney, A. F., Mengutey, S. & Pehlivan, A., 2012. Differences in physical activity levels in 8-10 year old girls who attend physical education classes only and those who regularly perform extracurricular sports activities. *Journal of Social and Behavioural Sciences*, Volume 46, pp. 4708-4712.
- Clingerman, E. M., 2003. Participation in Physical Activity by Persons Living With HIV Disease. *Journal of the Association of Nurses in AIDS Care*, 14(5), pp. 59-70.
- Colberg, S. R., 2006. The Impact of Exercise on Insulin Action in Type 2 Diabetes Mellitus: Relationship to Prevention and Control. *Insulin*, Volume 1, pp. 85-98.
- Courneya, K. S. & McAuley, E., 1995. Cognitive mediators of the social influence-exercise adherence relationship: A test of the theory of planned behaviour. *Journal of Behavioural Medicine*, Volume 18, pp. 499-515.
- Craig, C. L. et al., 2003. International Physical Activity Questionnaire: 12-Country Reliability and Validity. *Medicine and Science in Sports and Exercise*, 35(8), pp. 1381-1395.
- Ezema, C. I. et al., 2014. Effects of aerobic exercise training on cardiovascular parameters and CD4 cell count of people living with human immunodeficiency virus/acquired immune deficiency syndrome: A random controlled trial. *Nigerian Journal of Clinical Practice*, 17(5), pp. 543-548.
- Fillipas, S., Cicuttini, F., Holland, A. E. & Cherry, C. L., 2010. The International Physical Activity Questionnaire Overestimates Moderate and Vigorous Physical Activity in HIV-Infected

Individuals Compared With Accelerometry. *Journal of The Association of Nurses in AIDS Care*, 21(2), pp. 173-181.

Hambleton, R. I. et al., 2005. Historical and current predictors of self-reported health status among elderly persons in Barbados. *Rev Panam Salud Publica*, Volume 17, pp. 5-6.

Hensen, W. F., Starkes, J. L. & Hodges, N. J., 1998. Team sports and the theory of deliberate practice. *Journal of Sport and Exercise Psychology*, 20(1), pp. 12-34.

Kahn, R. L., 1979. *Aging and Social support*. 2nd ed. Boulder: Westview Press for the American Association for the Advancement of Science.

Khan, A., Brown, W. J. & Burton, N. W., 2012. What physical activity contexts do adults with psychological distress prefer?. *Journal of Science and Medicine in Sport*, Volume 16, pp. 417-421.

Li, G. S.-F., Lu, F. J. H. & Wang, A. H.-H., 2009. Exploring the Relationships of Physical Activity, Emotional Intelligence and Health in Taiwan College Students. *Journal of Exercise Science Fitness*, 7(1), pp. 55-63.

Macallan, D., 1999. Nutrition and immune function in human immunodeficiency virus infection. *Proceedings of the Nutrition Society*, Volume 58, pp. 743-748.

Malmstrom, M., Sundquist, J. & Johansson, S. E., 1999. Neighbourhood environment and self-reported health status: a multilevel analysis. *American Journal of Public Health*, 89(8), pp. 1181-1186.

Martinez, E., Garcia-Viejo, A. G., Blanch, J. & Gatell, J. M., 2001. Lipodystrophy syndrome in patients with HIV infection. *Drug Safety*, 24(3), pp. 157-166.

Meseguer, C. M. et al., 2009. Leisure-Time Physical Activity in a Southern European Country: Adherence to Recommendations and Determining Factors. *Rev Esp Cardiol*, 62(10), pp. 1125-1133.

- Miller, Y. & Dunstan, D., 2004. The effectiveness of physical activity interventions for the treatment of overweight and obesity and type 2 diabetes. *Journal of Science and Medicine in Sport*, 7(1), pp. 52-58.
- Mkandla, K., 2013. The effects of progressive resisted exercises on Performance-oriented mobility in persons with HIV related poly-neuropathy. *Wits wired space handle*.
- O'Brien, K., Nixon, S., Glazier, R. H. & Tynan, A. M., 2004. Progressive resistive exercise interventions for adults living with HIV/AIDS. *Cochrane Database Syst Rev*, 4(8).
- O'Brien, K., Tynan, A. M., Nixon, S. & Glazer, R. H., 2008. Effects of progressive resistive exercise in adults living with HIV/AIDS: systematic review and meta-analysis of randomised trials. *AIDS Care: Psychological and Socio-medical Aspects of AIDS/HIV*, 20(6), pp. 631-653.
- Ozdol, Y., Ozer, K. M., Pinar, S. & Cetin, E., 2012. Investigation of physical activity levels by gender and residential areas: a case study on patients in Akdeniz University. *Journal of Social and Behavioural Sciences*, Volume 46, pp. 1581-1586.
- Parra-Medina, D. & H, M. D. K., 2011. Promotion of Physical Activity Among Mexican-Origin Women in Texas and South Carolina: An Examination of Social, Cultural, Economic, and Environmental Factors. *Quest*, 63(1), pp. 100-117.
- Peeters, G., Brown, W. & Burton, N., 2014. Physical Activity Context Preferences in People With Arthritis and Osteoporosis. *Journal of Physical Activity and Health*, Volume 11, pp. 536-542.
- Perez, A. B., 2008. Exercise as the Cornerstone of Cardiovascular Prevention. *Rev Esp Cardiol*, 61(5), pp. 514-528.
- Proctor, S. P. et al., 1998. Health status of Persian Gulf war veterans: self-reported symptoms , environmental exposures and the effect of stress. *Int J Epidemiol*, 27(6), pp. 1000-1010.
- Ramirez-Marrero, F. A., Smith, B. A., Melendez-Brau, N. & Santana-Bagur, G. L., 2004. Physical and Leisure Activity, Body Composition, and Life Satisfaction in HIV-Positive Hispanics in Puerto Rico. *Journal of The Association of Nurses In AIDS Care*, 15(4), pp. 68-77.

Rick, P. (2014). *Calculating the right sample size*. Ottawa: Fluid Surveys University.

Roos, R., Myezwa, H. & van Aswegen, H., 2015. "Not easy at all but I am trying": barriers and facilitators to physical activity in a South African cohort of people living with HIV participating in a home-based pedometer walking programme. *AIDS Care: Psychological and Socio-medical Aspects of AIDS/HIV*, 27(2), pp. 235-239.

Roubenoff, R. et al., 1997. Feasibility of increasing lean body mass in HIV-Infected adults using progressive resistance training. *Nutrition*, Volume 13, p. 271.

Sternfeld, B., Ainsworth, B. E. & Quesenberry, C. P., 1999. Physical activity patterns in a diverse population of women. *Preventive Medicine*, Volume 28, pp. 313-323.

Tamuliene, V., 2013. Research in consumer preferences selecting the services of wellness-fitness centres in Kauna. *Journal of Education. Physical Training. Sport*, 2(89), pp. 57-64.

Timperio, A., Salmon, J. & Crawford, D., 2003. Validity and reliability of a physical activity recall instrument among overweight and non-overweight men and women. *Journal of Science and Medicine in Sport*, 6(4), pp. 477-491.

Valle, D. E. et al., 2004. Self-rated measures of physical activity and cardiovascular risk in a sample of Southern Italian male workers: The Olivetti Study. *Nutr Metab Cardiovasc Dis*, Volume 14, pp. 143-149.

Wiest, J. & Lyle, R. M., 1997. Physical Activity and Exercise: A first Step to Health Promotion and Disease in Women of All Ages. *Women's Health Issues*, 7(1), pp. 10-16.

www.nac.org.zw/about/hiv-aids-situation

www.unicef.org/zimbabwe/hiv_aids_1727.html

aids.gov/hiv-aids-basics/hiv-aids-101/global-statistics/

Zimstats, *Zimbabwe Population Census Report 2012*, Harare:

Appendix 1 – English Informed Consent Form MRCZ No. /B/667

Informed Consent Form

Study Title: Physical Activity Context Preferences of HIV-Positive Individuals at United Bulawayo Hospitals

Principal Investigator: Exavier Kamitsa [Physiotherapist, *BSc PT (UZ), MBA (NUST)*]

Phone number(s): +263 9 68497, +263 9 61099, +263 777 809 227

I am a Masters in Physiotherapy student at the University of the Witwatersrand doing research on physical activity participation in HIV-positive individuals at United Bulawayo Hospitals. This study will help me in coming up with suggestions of ways to increase physical activity participation amongst HIV-positive individuals.

I give you this consent so that you may read about the purpose, risks, and benefits of this research study. You are being asked to participate in a research study on physical activity participation in HIV-positive individuals. The purpose of the study is to learn how, with whom and where people who are HIV-positive prefer to do their physical activities. You were selected as a possible participant in this study because it is a study about HIV-positive individuals. A total of 190 individuals are going to fill in this questionnaire and all of them are from this hospital.

If you decide to participate, you will be required to fill in a questionnaire in which questions about your preferences for certain physical activity situations are asked. The questionnaire will take approximately 5-10 minutes to complete.

There are no known risks for participating in this study and there are also no direct benefits for your participation. Indirect benefits are that the results of the study will be used in coming up with ways to increase physical activity participation in HIV-positive patients.

If you indicate your willingness to participate in this study by signing this document, we do not plan to disclose your information to a third party. Any information that is obtained in connection with this study that can be identified with you will remain confidential and will be disclosed only with your permission. Personal information may be disclosed without your consent if required by the law. Organizations that may inspect and/or copy your research records for quality assurance and data analysis include groups such as the Research Ethics Committees (MRCZ and Wits Ethics Committee).

You are not expected to incur additional monetary expenses by participating in this study.

Participation in this study is voluntary. If you decide not to participate in this study, your decision will not affect your future relations with the United Bulawayo Hospitals, its personnel, and associated hospitals and also the University of the Witwatersrand. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty.

Study Title: Physical Activity Context Preferences of HIV-Positive Individuals at United Bulawayo Hospitals

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

You are making a decision whether or not to participate in this study. Your signature indicates that you have read and understood the information provided above, have had all your questions answered, and have decided to participate.

Name of Research Participant (please print)

Date

Signature of Participant

Time

Name of Witness (*if required*)

Signature

Date

YOU WILL BE OFFERED A COPY OF THIS CONSENT FORM TO KEEP.

If you have any questions concerning this study or consent form beyond those answered by the investigator, including questions about the research, your rights as a research participant or research-related injuries; or if you feel that you have been treated unfairly and would like to talk to someone other than a member of the research team, please feel free to contact the Medical Research Council of Zimbabwe (MRCZ) on telephone (04)791792 or (04) 791193 and cell phone lines 0772 433 166 or 0779 439 564. The MRCZ Offices are located at the National Institute of Health Research premises at Corner Josiah Tongogara and Mazowe Avenue in Harare.

Appendix 2 – Shona Informed Consent Form

MRCZ No. /B/667

Gwaro retenderano

Musoro: Ongororo yenzvimbo pamwe nevanhu vanofarirwa kuswerwa navo navanhu vanoonekwa paUnited Bulawayo Hospitals vane chirwere chemukondombera apo vanenge vachitwasanudza nhengo dzemiviri yavo.

Mutsvagurudzi: Exavier Kamitsa [Physiotherapist, *BSc PT (UZ), MBA (NUST)*]

Nhamba dzenhare: +263 9 68497, +263 9 61099, +263 777 809 227

Ini ndiri mudzidzi wezvidzidzo zvemasitazi yephysiotherapy pavhasiti yeWitwatersrand. Ndiri kuita tsvagurudzo pamusoro pematwasanudzirwo enhengo dzemiviri nevanhu vane chirwere chemukondombera pazvipatara zveUnited Bulawayo Hospitals. Tsvakurudzo iyi ichandibatsira kubuda nenzira dzakati tsvikiti dzingabatsira kuwedzera zviitwa zvekutwasanudzwa nhengo dzemiviri kuvanhu vane chirwere chemukondombera.

Ndinokupai gwaro rino kuti muverenge muzive chinangwa, njodzi dziripo pamwe nezvingakubatsirai maererano netsvagurudzo ino. Ndiri kukukumbirai kuti mupinde mutsvagurudzo ino iri maererano nematwasanudzirwo anoitwa miviri neavo vane chirwere chemukondombera. Mutsvakurudzo ino ndinoda kudzidza kuti vanhu vane chirwere chemukondombera vanotwasanudza nhengo dzemiviri yavo sei, naani uye vachiita zvipi. Masarudzwa kupinda mutsvakurudzo iyi nokuti ndeye avo vane chirwere chemukondombera. Mutsvagurudzo iyi pachabvunzwa vanhu vanosvika 190 pachipatara chino.

Mukabvuma kupinda mutsvagurudzo ino muchakumbirwa kupindura mibvunzo iri pagwaro rino iri maereraneno nezvamunofarira kana muchitwasanudza nhengo dzemuviri wenyu. Izvi zvingangokutorerai maminitisi anotangira pamashanu kusvika pamaminitisi anokwana gumi.

Hapana njodzi dzinozivikanwa mukuva kwenyu mutsvakurudzo iyi uye hapanawo mubhadharo wamunowana. Asika tsvakurudzo iyi ingangozokubatsiraiwo kuburikidza nekuwana nzira dzakati tsvikiti dzingabatsira kuwedzera zviitwa zvekutwasanudzwa nhengo dzemiviri kuvanhu vane chirwere chemukondombera.

Mukabvuma kupinda mutsvagurudzo iyi nokusaina gwaro rino ndinotsidza kuti zvamuchatipa itsindidzo yangu nemi. Zvamuchatipa zvinogona kuburitsa kuti imi ndimi ani zvichasungwa neutare uye zvinongozoburitswa pachena kana imi matipa mvumo. Asi zivai kuti zviri maererano nemi zvinogonawo kuburitswa pachena kana mitemo yematongerwo enyika yati gogogoi. Amwe amasangano angatora mhinduro dzenyu zvine mvumo achida kukwenenzvera pano neapo anosanganisira maResearch Ethics Committees (Medical Research Council of Zimbabwe neWits Ethics Committee).

Hamutarisirwe kusevenzesa mari yenyu pakupinda kwenyu mutsvagurudzo ino. Rangarirai kuti kuva kwenyu mutsvakurudzo iyi isharaude. Mukasarudza kusapinda mutsvagurudzo iyi hazvikanganise hukama hwenyu nechipatara chino, vashandi vepano nezvimwe zvipatara kana vhasiti yeWitwatersrand. Kana masarudza kupinda mutsvagurudzo ino zvinobvumidzwawo kubuda panechero ipi zvayo nguva pasina muripo wamunobvisa.

Musoro: Ongororo yenzvimbo pamwe nevanhu vanofarirwa kuswerwa navo navanhu vanoonekwa paUnited Bulawayo Hospitals vane chirwere chemukondombera apo vanenge vachitwasanudza nhengo dzemiviri yavo.

Musati masaina gwaro rino sunungukai kubvunza chero mubvunzo wamungaita maererano netsvagurudzo ino. Munotenderwa kutora chero nguva yamungada muchifunga zvenyu.

Murikuita sarudzo yekupinda kana kusapinda mutsvagurudzo ino. Sainecha yenyu inoreva kuti maverenga mukanzwisisa zvataurwa pamusoro, mibvunzo yenyu yapindurwa uye mabvuma kupinda mutsvagurudzo ino.

Zita remubvunzwi (Nyora zvakanaka)

Zuva

Sainecha yemubvunzwi

Nguva

Zita rechapupu (*kana chichidiwa*)

Sainecha

Zuva

MUCHAPIWA GWARO RIMWE REUCHAPUPU RAMUCHAGARA NARO

Kana muri nemibvunzo maererano netsvagurudzo ino kana gwaro retenderano iyo munofunga kuti haina kupindurwa zvakufadzai, ingava mibvunzo inechekuita nekodzero dzenyu semubvunzwi kana njodzi dziri maererano netsvagurudzo; mungafungawo kuti hamuna kubatwa zvakafanira uye muchida kutaura nemunhu asiri muchikwata chiri kuita tsvagurudzo iyi, sunungukai kubata veMedical Research Council of Zimbabwe (MRCZ) panhamba dzenhare dzinoti (04)791792, (04)791193, 0772433166 kana 0779439564. Munogona kushanyira mahofisi eMRCZ ari paNational Institute of Health Research panosangana Josiah Tongogara naMazowe Ave muHarare

Appendix 3 – Ndebele Informed Consent Form MRCZ No. /B/667

Ugwadlawana lwemvumo yobudlelwano bethu

Isihloko sesifundo: Ukuqina kokudlala ngokugcweleyo okukhethwa ngabantu abaphila legcikwane leHIV ezibhedlela zeUnited Bulawayo Hospitals

Odingisisayo ngu: Exavier Kamitsa [Physiotherapist, *BSc PT (UZ), MBA (NUST)*]
Inombolo zocingo: +263 9 68497, +263 9 61099, +263 777 809 227

Mina ngifundela ebangeni langaphezulu kwezephysiotherapy eUniversity yeWitwatersrand. Ngiyenza uphenyo kwezokuqina komzimba lokuphatheka kwabantu abaphila legcikwane leHIV eUnited Bulawayo Hospitals. Lokhu kucubungula kuzangisiza ukuthi ngithole iminakano lendlela zokukhuphula inhlelo zokuqinisa imizimba kubantu abaphila legcikwane.

Ngikupha lolu gwalo lwemvumo ukuze ubale inhloso, ingozi langemvuzo yaloluphenyo. Liyacelwa ukuba liphatheke kulokhu kudingisisa kokuqina kokudlala ebantwini abaphila legcikwane. Inhloso yaloluphenyo ngelokufunda ukuba njani, lobani njalo ngaphi abantu abaphila legcikwane abakhetha ukwenza imidlalo yokuqina komzimba. Ukhethwe ukuba ngomunye walabo abazaphatheka kuloluphenyo ngoba ngolwabantu abaphila legcikwane. Abantu abafika 190 bazaphendula imibuzo njalo bonke bavela kulesi sibhedlela.

Uma ungafisa ukuphatheka kulophenyo kuzadingakala ukuba uphendule umsebenzi wemibuzo mpendulo lapho imibuzo edinga ukwazi ngokhetho lwalapho ofisa ukwenzela imisebenzi yokuqina komzimba. Lombuzo mpendulo uzathatha phose imizuzwana engaba mihlanu kusiya kwelitshumi ukuba uyigcwalise.

Akula kukhubazeka okungaba khona ekuphathekeni kuloluphenyo njalo akula mvuzo osobala ekuphathekeni kwakho. Imibuzo yaloluphenyo yikuba ulwazi olutholakale ekudingisiseni lokhu luzanceda ukukhuphula imidlalo yokuqina komzimba kulabo abaphila legcikwane.

Uma ungatshengisela isifiso sokuphatheka kuloluphenyo ngokusayina lolugwalo, asila sifiso sokuveza imfihlo yakho komunye umuntu. Ulwazi olutholakale kuloluphenyo olunga kuveza wena luzagcinwa lufihlakele njalo luzavezwa ngemvumo yakho. Imfihlo yakho ingavezwa obala nxa kule sidingeko ngabomthetho. Amabandla ayehlukeneyo engakhangelisisa kumbe athathe lokhu okugciniweyo ukuze babone isisindo lolwazi olucubungulisiweyo kugoqela abanjengo Research Ethics Committees. (Medical Research Council of Zimbabwe leWits Ethics Committee).

Akukhangelelwanga ukuba uchithe imali ngokuphatheka kwakho kuloluphenyo.

Ukuphatheka kuloluphenyo kungokufuna kwakho. Uma ungafisi ukuphatheka kuloluphenyo umbono wakho awusoze waphica ubudlelwano bakho lezibhedlela zeUnited Bulawayo Hospitals, kufihlakele ezinye izibhedlela leUniversity yeWitwatersrand. Uma ungafisa ukuphatheka uyavunyelwa ukuyekela loba nini njalo akula sijeziso.

Isihloko sesifundo: Ukuqina kokudlala ngokugcweleyo okukhethwa ngabantu abaphila legcikwane leHIV ezibhedlela zeUnited Bulawayo Hospitals

Ungakasayini ifomu leyi ngicela ubuze loba yiwuphi umbuzo lapho ongazwisisi khona. Ungathatha isikhathi osifunayo ukucabangisisa ngokuphatheka kwakho.

Uyenza isinqumo sokuphatheka kuloluphenyo. Lokhu kusayina kwakho kutshengisa ukuba uzwisisile umthombo wolwazi owuphiweyo uphenduliwe imibuzo yakho njalo usufake isi nqumo sokuba uzaphatheka kuloluphenyo.

Ibizo lakho (ulobe ngokugcweleyo)

Langa

Sayina lapha

Isikhathi

Ibizo lomfakazi (uma lidingakala)

Sayina

Ilanga

UZAPHIWA UGWALO LWEMVUMO YOKUPHATHEKA KWAKHO UGCINE

Uma ulemibuzo ephathelane lophenyo lolu kumbe ugwalo lwemvumo yokuphatheka ngaphandle kwaleyo ephendulwe ngodingisisayo, leminyane imibuzo ephathelane lophenyo lolu, ilungelo lakho njengo muntu ophatheke kuphenyo lolu kumbe ukulimala okuphatheke lophenyo lolu; kumbe ubona angani kawuphathwanga kuhle njalo ukhona ofisa ukukhuluma laye ongasuye lowo odingisisayo, khululeka uthinte iMedical Research Council of Zimbabwe (MRCZ) kumbe utshaye ucingo ku(04) 791792 kumbe (04) 791193 ungasithinta njalo kumakhalekhukhwini 0772 433 166 kumbe 0779 439 564. Amahofisi eMRCZ atholakala eNational Institute of Health Research ekhoneni lika Josiah Tongogara loMazowe Ave eHarare.

Appendix 4 – English Questionnaire

Study Title: Physical Activity Context Preferences of HIV-Positive Individuals at United Bulawayo Hospitals

I greatly appreciate your help with this survey.

Your answers are very important to me.

Please remember:

- There are no right or wrong answers:
I just want to know what YOU think
- Provide only one answer for each item and
Please don't skip any questions
- Your answers will be treated as strictly
private and confidential

Participant Code

.....

1. In general, you would say your health is:

Excellent	Very good	Good	Fair	Poor
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

2. Are you:

Male	Female
<input type="checkbox"/> 1	<input type="checkbox"/> 2

3. How tall are you without shoes on?

.....cm

4. How much do you weigh with light clothes and your shoes off?

.....Kg

5. What is your date of birth (e.g. 23/5/1951)

.....

6. What is the highest educational qualification you have completed?

Tick ONE only.

Grade 7 or less	<input type="checkbox"/>
Form 2	<input type="checkbox"/>
O'Level	<input type="checkbox"/>
A'Level	<input type="checkbox"/>
Certificate (trade or business)	<input type="checkbox"/>
Diploma or Associate Degree	<input type="checkbox"/>
Bachelor Degree (Pass or Honours)	<input type="checkbox"/>
Graduate Diploma or Graduate Certificate	<input type="checkbox"/>
Postgraduate degree (Masters degree or Doctorate)	<input type="checkbox"/>
Other (please describe)	

7. Which one of the following best describes your current living arrangement?

Please tick one only.

- Living alone with no children ☐
- Single parent living with one or more children ☐
- Single and living with friends or relatives ☐
- Couple (married or defacto) living with no children ☐
- Couple (married or defacto) living with one or more children ☐
- Other (please specify)

8. How many people in total live in your household?
 (Please include yourself, partner, children, and/or anyone else living with you)

.....

9. To help us understand the difficulties that people with different levels of income experience, we would be grateful if you could provide us with an estimate of your total household income. We know that some people feel uncomfortable providing information about their income, so to help make this easier we have grouped the incomes into broad categories so that your actual household income can't be identified. Please add up the amount of net income received by all members of your household, and tick the box that comes closest to this number. Please indicate income either per year or per month.

Per year		OR Per month	
Less than \$1 200	<input type="checkbox"/>	Less than \$100	<input type="checkbox"/>
\$1 201-\$1 800	<input type="checkbox"/>	\$101-\$150	<input type="checkbox"/>
\$1 801-\$2 400	<input type="checkbox"/>	\$151-\$200	<input type="checkbox"/>
\$2 401-\$3 600	<input type="checkbox"/>	\$201-\$300	<input type="checkbox"/>
\$3 601-\$4 800	<input type="checkbox"/>	\$301-\$400	<input type="checkbox"/>
\$4 801-\$6 000	<input type="checkbox"/>	\$401-\$500	<input type="checkbox"/>
\$6 001-\$7 200	<input type="checkbox"/>	\$501-\$600	<input type="checkbox"/>
\$7 201-\$8 400	<input type="checkbox"/>	\$601-\$700	<input type="checkbox"/>
\$8 401-\$9600	<input type="checkbox"/>	\$701-\$800	<input type="checkbox"/>
\$9 601-\$10 800	<input type="checkbox"/>	\$801-\$900	<input type="checkbox"/>
\$10 801 or more	<input type="checkbox"/>	\$901 or more	<input type="checkbox"/>
Don't know	<input type="checkbox"/>		
Don't want to answer this	<input type="checkbox"/>		

If you had the choice, what sort of physical activities do you prefer?

I prefer activities that:

(Please tick one box for each item)

	Strongly disagree	Disagree	No preference	Agree	Strongly agree
I can do on my own	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Involve competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Are done with people around my age	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Can be done close to home	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Are done outdoors	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Require skill and practice	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Are structured with a set routine or format	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Involve little or no cost	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Involve supervision (eg, from a leader)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Are team based	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Are done at a fixed time (eg, scheduled sessions)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Are done with people of my own sex	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Are not just about exercise	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Are vigorous	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Are done with others	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Are done in a small group (eg, classes at a club or centre)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Are done at home	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Are done with people at my level of ability	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Use the latest equipment	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Other (please specify	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Appendix 5 – Shona Questionnaire

Musoro: Ongororo yenzvimbo pamwe nevanhu vanofarirwa kuswerwa navo navanhu vanoonekwa paUnited Bulawayo Hospitals vane chirwere chemukondombera apo vanenge vachitwasanudza nhengo dzemiviri yavo.

Ndinoda kupa kutenda kukuru neyamuro yenyu mutsvakurudzo iyi.

Mhinduro dzenyu dzakakoshesa kwandiri.

Rangarirai zvinotevera:

- Mhinduro dzese zvadzo dzinotambirwa:

Ndinoda kuona maonero ENYU chete.

- Ipai mhinduro imwe chete pamubvunzo wega wega uye

Ndinokumbira musasiye mubvunzo usina kupindurwa.

- Mhinduro dzenyu itsindidzo yangu nemwi hapanazve mumwe

Mibvunzo

Nhamba yemubvunwi

.....

6. Ungati hutano hwako hwakadii:

Ndakagwinyisa	Ndakagwinya	Ndiri nani	Ndizvowo	Hazvisizvo
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

7. Uri munhuyi:

Murume	Mukadzi
<input type="checkbox"/> 1	<input type="checkbox"/> 2

8. Wakareba zvakadii usina kupfeka shangu?

-----cm

9. Unorema zvakadii uri nembatya shoma uye usina shangu?

-----kg

10. Wakazvagwa zvarini? (sokuti 23/05/1951)

6. Wakadzidza kusvika gwaro ripi?

Sarudza gwaro rimwe chete

Giredhi 7 kana pazasi

Fomu 2

Fomu 4

Fomu 6

Chitupa chezvebasa kana bhizimusi

Dhipuroma

Dhigiri rekutanga

Dhipuroma pamusoro pedhigiri

☐
☐
☐
☐
☐
☐
☐
☐

Dhigiri remasitazi kana reuzvinafundo



Zvimwewo (*tsanangura*)-----

7. Pane zvinotevera ndechipi chinonyatsotsanangura magariro awakaita izvozvi?

(*Sarudza chimwe chete*)

Ndinogara ndega handina vana

Handina murume/mukadzi ndinogara nemwana/vana

Handina murume/mukadzi ndinogara nehama/shamwari

Ndine murume/mukadzi asi hatina mwana/vana

Ndine murume/mukadzi tinogara nemwana/nevana

Zvimwewo (*tsanangura*).....



8. Mumba maunogara munogara muri vangani mese?

(*Verenga vanhu vese kusanganisira iwe nemhuri yako yese*)

9. Kuti tinyanzonwisisa matambudziko anosangana navanhu vanotambira mari dzakasiyana, zvingatirerukira mukatipa mari inotambirwa nemhuri yenyu yese muimba yamunogara yakabatanidzwa. Kuti veruzhinji vasaziva mari chaiyo inotambirwa mumhuri yenyu, tadziunganidza muzvikwata apo muchasarudza chikwata chimwe chega.

Hwerengedzai mari yese inouyiwa nayo nevemhuri mokwenya bhokisi rinotaridza mari iyi pangava pagore kana kuti pamwedzi.

Pagore

Iri pasi pe\$1 200

\$1 201-\$1 800

\$1 801-\$2 400

\$2 401-\$3 600

\$3 601-\$4 800

\$4 801-\$6 000

\$6 001-\$7 200

\$7 201-\$8 400

\$8 401-\$9600

\$9 601-\$10 800

\$10 801 or kana pamusoro

Handizivi

Handidi kupindura



Kana Pamwedzi

Iri pasi pe\$100

\$101-\$150

\$151-\$200

\$201-\$300

\$301-\$400

\$401-\$500

\$501-\$600

\$601-\$700

\$701-\$800

\$801-\$900

\$901 kana pamusoro



Dai waipiwa mukana, ndeapi maitiro awaiti ndiwo akanaka pakutwasanudza nhengo dzemuviri wako?

Ndinofarira zviitwa:

(Sarudza bhokisi rimwe iro uchakwenya papfungwa yega yega)

	Ndinorambisisa	Ndinorambisa	Hapana chandadza	Ndinobvumisa	Ndinobvumisisa
Zvandinogona kuita ndega	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoitwa ari makwikwi	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoitwa ndiri nevezera rangu	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoitwa pedyo nekumba kwangu	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoitirwa munhandare dzepanze	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoda unyanzvi nekudzidzirwa	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoitwa negwara rakarongeka	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoitwa pasina mari inobhadharwa	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoitwa pari nemutungamiri akakwana	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoitwa tiri muzvikwata	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoitwa nenguva yakatarwa	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoitwa varume/vakadzi vari vega	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvisiri zvokungodziisa miviri	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zviitwa zvinoda simba rakawanda	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoitwa vanhu vakawanda	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoitwa vanhu vari muzvikwata zvidiki	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Zvinoitirwa vanhu vari kumba kwavo	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoitwa nevari pachinhanho chimwe neni	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvinoshandisa michina yaikozvino	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Zvimwe zvaungada kutaura (Doma)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Appendix 6 – Ndebele Questionnaire

Isihloko sesifundo: Ukuqina kokudlala ngokugcweleyo okukhethwa ngabantu abaphila legcikwane leHIV ezibhedlela zeUnited Bulawayo Hospitals

Ngilokubonga okukhulu ngoncedo lwenu kuphenyo lolu.

Impendulo zenu ziqakathekile kakhulu kimi.

Ngicela lingalibali:

- Akula mpendulo eqondileyo kumbe engaqondanga.

Ngifisa ukuba kwazi ukuba ucabangani.

- Phana impendulo eyodwa kumbuzo munye

Liyaxwayiswa ukuba liphendule yonke imibuzo.

- Impendulo zenu zizakuba yimfihlo engavezelwamuntu.

Umsebenzi wemibuzo mpendulo

Inombolo yalowo obuzwayo

.....

11. Ngamafitshane, uthini ngempilakahle yakho:

<u>Inhle kakhulu kakhulu</u>	<u>Inhle kakhulu</u>	<u>Inhle</u>	<u>Phakathi laphakathi</u>	<u>Imbi</u>
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

12. Wena ungo:

<u>Wesidoda</u>	<u>Wesifazana</u>
<input type="checkbox"/> 1	<input type="checkbox"/> 2

13. Umude okungakanani ungagqokanga izicathulo?

.....cm

14. Unzima okungakanani ungagqokanga impahla ezinzima?

.....Kg

15. Wazalwa nini (Isibonelo 23/5/1951)

.....

6. Usufunde okungakanani?

Khetha okukodwa kulokhu okulandelayo

Grade 7 kusiya phansi

iFormu 2

IFormu 4

iFormu 6

iCertificate (trade or business)

iDiploma or Associate Degree

iBachelor Degree (Pass or Honours)

iGraduate Diploma or Graduate Certificate

iPostgraduate degree (Masters Degree or Doctorate)

Okunye (*Utsho*).....

☐

☐

☐

☐

☐

☐

☐

☐

☐

☐

7. Yikuphi phakathi kwalokhu okulandelayo okuveza indlela ohlezi ngayo?

Khetha okukodwa

- | | | |
|--|--------------------------|--------------------------|
| Ngihlala ngedwa ngingelangane | <input type="checkbox"/> | <input type="checkbox"/> |
| Ngizihlalela ngedwa lengane eyodwa loba abanengi | <input type="checkbox"/> | |
| Ngihlala labangane kumbe izihlobo angendanga | | <input type="checkbox"/> |
| Ngihlala (lomkami kumbe umasihlalisane singela bantwana) | <input type="checkbox"/> | |
| Ngihlala (lomkami kumbe isithandwa silabantwana) | | <input type="checkbox"/> |
| Okunye (<u>chaza ngokucacileyo</u>) | | |

8. Libangaki la elihlala khona?

(Sicela uhlanganise wena, ingxenye yakho, abantwana kumbe omunye nje ongabe uhlala laye)

.....

9. Ukuze usancedise sizwisise inhlupho ezikhangelane labantu abalemiholo etshiyeneyo, singabonga kakhulu uma ungasitshela ukuba ucabangela ukuthi lizuza imali engakanani endlini. Siyazi ukuba abanye akubaphathi kuhle ukuchaza ukuba bathola imali engakanani ukuze selule umthwalo lo sifake inengi lemali ngamaqembu ukuze inani lemali yakho ingavezeki sobala. Sicela uhlanganise imali etholwa ngabantu ohlala labo ubusukhetha ibhokisi elilemali eseduzane laleyo eliyitholayo. Utshengise ngokufaka ukhwetshu ebhokisini ngomnyaka langenyanga.

Ngomnyaka

- | | |
|-------------------------------|--------------------------|
| <u>Ngaphansi kwe \$1 200</u> | <input type="checkbox"/> |
| <input type="checkbox"/> | |
| \$1 201 kusiya ku \$1 800 | <input type="checkbox"/> |
| <input type="checkbox"/> | |
| \$1 801 kusiya ku \$2 400 | <input type="checkbox"/> |
| <input type="checkbox"/> | |
| \$2 401 kusiya ku \$3 600 | <input type="checkbox"/> |
| <input type="checkbox"/> | |
| \$3 601 kusiya ku \$4 800 | <input type="checkbox"/> |
| <input type="checkbox"/> | |
| \$4 801 kusiya ku \$6 000 | <input type="checkbox"/> |
| <input type="checkbox"/> | |
| \$6 001 kusiya ku \$7 200 | <input type="checkbox"/> |
| <input type="checkbox"/> | |
| \$7 201 kusiya ku \$8 400 | <input type="checkbox"/> |
| <input type="checkbox"/> | |
| \$8 401 kusiya ku \$9600 | <input type="checkbox"/> |
| <input type="checkbox"/> | |
| \$9 601 kusiya ku \$10 800 | <input type="checkbox"/> |
| <input type="checkbox"/> | |
| \$10 801 kumbe okudlulisileyo | <input type="checkbox"/> |
| Angikwazi | <input type="checkbox"/> |
| Angifisi ukuphendula | <input type="checkbox"/> |

Kumbe Ngenyanga

- | | |
|----------------------------|--------------------------|
| <u>Ngaphansi kwe \$100</u> | |
| \$101 kusiya ku \$150 | |
| \$151 kusiya ku \$200 | |
| \$201 kusiya ku \$300 | |
| \$301 kusiya ku \$400 | |
| \$401 kusiya ku \$500 | |
| \$501 kusiya ku \$600 | |
| \$601 kusiya ku \$700 | |
| \$701 kusiya ku \$800 | |
| \$801 kusiya ku \$900 | |
| \$901 kumbe okudlulisileyo | <input type="checkbox"/> |

Ngabe ulethuba lokukhetha, ngabe uyenza mdlalo bani wokuzelula?

Ngikhetha

umdlalo/umsebenzi:

(khetha ibhokisi elilodwa ufake

ukhwetshu kumpendulo inye ngayinye)

	Angivumela ni lakho ngempela	Angivu mi	Angiwuthan di	Ngiyavum a	Ngiyawuthokoze la kakhulu
Engingawenza ngedwa	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
<u>Elomncintiswano</u>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Olentanga yami	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Oseduzane langekhaya	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Owenziwa phandle	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Ofuna ukukhalipha lokwenelisa	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Olemixwayiso lokulandela okuthize	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Ongadinga imali kumbe ofuna enlutshwane	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Ongadinga ukuncediswa (kumbe lomtshayeli)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Odinga ukuba libeliqembu	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Owenziwa ngesikhathi esithize	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Owenziwa <u>ngabesilisa</u> /abesifazane kuphela	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Ongadingi ukuzelula amathambo kuphela	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Adinga amandla angaphezulu	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Awenziwa labanye	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Awenziwa liqembu elincane (lihlangana ekilabhu)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Ayenziwa ngekhaya	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Ayenziwa ngabantu abayenelisayo	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Asebenzisa insimbi zakulenzinsuku	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Okunye (utsho)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Appendix 7 – Communication with Prof Burton

Hi

As this is a descriptive measure, we have not analysed validity (as there is no gold standard to compare it to)

We have not had the opportunity to examine test retest reliability

regards

Nicola

Nicola Burton

MPSych(Clinical), PhD, FAPS

Senior Research Fellow | Research Manager

School of Human Movement Studies | Centre for Research on Exercise, Physical Activity & Health (CRExPAH)

Cnr Blair Drive & Union Road (Building 26B)

The University of Queensland | St Lucia campus

Brisbane QLD 4072 AUSTRALIA

Tel: (+61 International) 7 3365 6282 | Fax: (+61 International) 7 3365 6877 | Email: nburton@hms.uq.edu.au

[Website](#) | [Location](#)

From: Exavier Kamitsa [<mailto:ekamitsa@psmi.co.zw>]

Sent: Monday, 17 March 2014 7:12 AM

To: Nicola Burton

Subject: RE: how, where and with whom? physical activity context preferences of three adult groups at risk of inactivity

Good day.

I was wondering what is the validity and reliability of the instrument?

Regards

Exavier

From: Nicola Burton [<mailto:nburton@hms.uq.edu.au>]

Sent: Thursday, February 20, 2014 4:19 PM

To: Exavier Kamitsa

Subject: RE: how, where and with whom? physical activity context preferences of three adult groups at risk of inactivity

Hi

Thank you for your interest in this work.

I have attached the latest version of this questionnaire. It can be adapted to tailor to specific groups eg we've added in an item about exercising with people with the same health issues (ie HIV in your study)

All the best with your work

Nicola

Nicola Burton

MPsych(Clinical), PhD, FAPS

Senior Research Fellow | Research Manager

School of Human Movement Studies | Centre for Research on Exercise, Physical Activity & Health (CRExPAH)

Cnr Blair Drive & Union Road

The University of Queensland | St Lucia campus

Brisbane QLD 4072 AUSTRALIA

Tel: (+61 International) 7 3365 6282 | Fax: (+61 International) 7 3365 6877 | Email: nburton@hms.uq.edu.au

[Website](#) | [Location](#)

From: Exavier Kamitsa [<mailto:ekamitsa@psmi.co.zw>]

Sent: Friday, 21 February 2014 4:04 AM

To: Nicola Burton

Subject: how, where and with whom? physical activity context preferences of three adult groups at risk of inactivity
Good day!

I am a masters student at university of Witwatersrand in Johannesburg, South Africa. I want to do a similar study but focusing on HIV positive patients. I am wondering if you can send me the questionnaire you used for the study.

Regards

Exavier

Appendix 8 – Wits HREC Clearance Letter



R14/49 Mr Exavier Kamitsa

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL) CLEARANCE CERTIFICATE NO. M140539

NAME: Mr Exavier Kamitsa
(Principal Investigator)

DEPARTMENT: Physiotherapy
Opportunistic Infections Clinic, United Bulawayo Hospital

PROJECT TITLE: Physical Activity Context Preferences of HIV- Positive
Individuals in Zimbabwe

DATE CONSIDERED: 30/05/2014

DECISION: Approved unconditionally

CONDITIONS:

SUPERVISOR: Ms Nadia Gillion

APPROVED BY: 

Professor P Cleaton-Jones, Chairperson, HREC (Medical)

DATE OF APPROVAL: 10/07/2015
This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Secretary in Room 10004, 10th floor, Senate House, University.
I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report.**

Principal Investigator Signature

Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix 9 – Medical Research Council of Zimbabwe Ethics Clearance letter

Telephone: 791792/791193
Telefax: (263) - 4 - 790715
E-mail: mrcz@mrcz.org.zw
Website: <http://www.mrcz.org.zw>



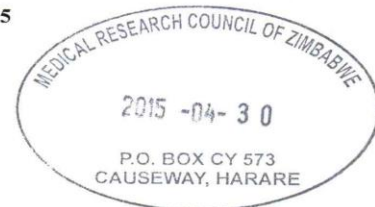
Medical Research Council of Zimbabwe
Josiah Tongogara / Mazoe Street
P. O. Box CY 573
Causeway
Harare

APPROVAL

REF: MRCZ/B/667

30 April 2015

Kamitsa Exavier
9 Duxbury Avenue
Bradfield
Bulawayo



RE: Physical Activity Context Preferences for HIV-Positive Individuals at United Bulawayo Hospitals

Thank you for the application for review of Research Activity that you submitted to the Medical Research Council of Zimbabwe (MRCZ). Please be advised that the Medical Research Council of Zimbabwe has **reviewed** and **approved** your application to conduct the above titled study.

This approval is based on the review and approval of the following documents that were submitted to MRCZ for review:-

- a) Study proposal
- b) Questionnaires
- c) Consent Document

- TYPE OF MEETING : Expedited
- EFFECTIVE APPROVAL DATE : 30 April 2015
- EXPIRATION DATE : 29 April 2016

After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ Offices should be submitted three months before the expiration date for continuing review.

- **SERIOUS ADVERSE EVENT REPORTING:** All serious problems having to do with subject safety must be reported to the Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices or website.
- **MODIFICATIONS:** Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent documents).
- **TERMINATION OF STUDY:** On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices or website.
- **QUESTIONS:** Please contact the MRCZ on Telephone No. (04) 791792, 791193 or by e-mail on mrcz@mrcz.org.zw

Other


- Please be reminded to send in copies of your research results for our records as well as for Health Research Database.
- You're also encouraged to submit electronic copies of your publications in peer-reviewed journals that may emanate from this study.

Yours Faithfully

MRCZ SECRETARIAT
FOR CHAIRPERSON
MEDICAL RESEARCH COUNCIL OF ZIMBABWE

Appendix – 10 United Bulawayo Hospitals Approval

Telephone: 791792/791193
 Tel/fax: (263) -4 - 791715
 E-mail: mrcz@mrcz.org.zw
 Website: <http://www.mrcz.org.zw>



Medical Research Council of Zimbabwe
 Josiah Pongugura / Mazoe Street
 P. O. Box CY 573
 Causeway
 Harare

Approved

APPROVAL

REF: MRCZ/B/667

Kumitsa Exavier
 9 Duxbury Avenue
 Bradfield
 Bulawayo

30 April 2015

12 MAY 2015
 TO FOR THE BULAWAYO HOSPITALS

MEDICAL RESEARCH COUNCIL OF ZIMBABWE
 2015 - Apr 30
 JOSIAH PONGUGURA
 CAUSEWAY, HARARE

RE: Physical Activity Context Preferences for HIV-Positive Individuals at United Bulawayo Hospitals

Thank you for the application for review of Research Activity that you submitted to the Medical Research Council of Zimbabwe (MRCZ). Please be advised that the Medical Research Council of Zimbabwe has reviewed and approved your application to conduct the above titled study.

This approval is based on the review and approval of the following documents that were submitted to MRCZ for review:-

- a) Study proposal
- b) Questionnaires
- c) Consent Document

• TYPE OF MEETING	: Expedited
• EFFECTIVE APPROVAL DATE	: 30 April 2015
• EXPIRATION DATE	: 29 April 2016

After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ Offices should be submitted three months before the expiration date for continuing review.

• **SERIOUS ADVERSE EVENT REPORTING:** All serious problems having to do with subject safety must be reported to the Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices or website.

• **MODIFICATIONS:** Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent document).

• **TERMINATION OF STUDY:** On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices or website.

• **QUESTIONS:** Please contact the MRCZ on Telephone No. (04) 791792, 791193 or by e-mail on mrcz@mrcz.org.zw

Other

- Please be reminded to send 11 copies of your research results for our records as well as for Health Research Database.
- You're also encouraged to submit electronic copies of your publications in peer-reviewed journals that may originate from this study.

Yours Faithfully

B. P. P.

**MRCZ SECRETARIAT
 FOR CHAIRPERSON
 MEDICAL RESEARCH COUNCIL OF ZIMBABWE**

DISSEMINATION OF RESEARCH RESULTS

Appendix 11 – Turnitin Summary Report

Document title – Physical Activity Context Preferences at UBH 31 March...

Submit date – Thu 31 Mar 2016 07:27:14 AM CEST

15%

4% What physical activity context s do adult s wit h psychological distress prefer?

2% Older adult s' preferences for exercising alone versus in groups: Considering contextual congruence

2% How, where and with whom? Physical activity context preferences of three adult groups at risk of inactivity

2% Physical activity and exercise: A first step t o health promotion and disease prevent ion in women

2% Physical activity context: Preferences of university student s

2% Exercise as the Cornerstone of Cardiovascular Prevention

2% Promotion of Physical Activity Among Mexican-Origin Women in Texas and South Carolina: An Examination of Socia...

1% http://eprint.sulster.ac.uk/11010/1/Janine_survey_paper.pdf

1% Cancer survivors' exercise barriers, facilitators and preferences in the context of fatigue, quality of life and physical a...

1% <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004248.pub2/summary>

1% “Not easy at all but I am trying”: barriers and facilitators t o physical activity in a South African cohort of people living...

1% Investigation of Physical Activity Levels by Gender and Residential Areas: A Case Study on Students in Akdeniz Un...

1% <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2396970/>

1% http://vuir.vu.edu.au/1857/1/Felicity_Morris.pdf

1% <http://www.ijbnpa.org/content/pdf/1479-5868-2-12.pdf>